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ABSTRACTS

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RESEARCH ON LEARNING WITH THE MENTALLY RETARDED: A COMPREHENSIVE BIBLIOGRAPHY [1]

JAMES M. GARDNER, STANLEY SELINGER, LUKE S. WATSON, DONALD T. SAPOSNEK AND GRACE M. GARDNER

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Studies of the learning process of the mentally retarded can be dated from the early part of the Twentieth Century. Researchers have studied the mentally retarded in an attempt to learn about the process of learning *per se*, and in an attempt to understand the peculiar nature of the learning process as it relates to the mentally retarded as a unique subject population.

This bibliography of almost 900 items was compiled in an attempt to provide a comprehensive listing of studies of learning with the mentally retarded. In terms of manpower, it required the full-time services of 2 psychology graduate students over a 3-month period, plus supervisory and clerical time—in all, we estimate that it represents an investment of over 2,000 man hours. The details of the search for the articles, the establishment of the reliability and validity of the methods which we employed, and an analysis of the trends in learning research have been prepared separately.

There were a number of criteria adopted for including an article in this bibliography. In the first place, all studies cited here deal with human subjects. No attempt was made to survey the animal literature. Secondly, the articles are mainly research studies, although summaries of research and theoretical articles which deal with appropriate learning areas are also included. Finally, in addition to journal articles, books, symposia, etc., the bibliography contains papers presented at professional meetings which were later referenced in published documents. This bibliography covers the literature through 1968.

I. APPLIED BEHAVIOR CHANGE

Behavior Modification

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VIII. MISCELLANEOUS—GENERAL

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1502 KRIM, MATHILDE. Scientific research and mental retardation. *PCMR (President's Committee on Mental Retardation) Message*, Number 16 (January):1-11, 1969.

Scientific research is presently and will in the future predict and change the course of potential and actual cases of MR. An increasing concern about MR is evident in Federal, State, and local governments. Research has resulted in an understanding of the numerous and varied etiologies of MR, the evolution of diagnostic methods, and the development of possible methods for preventing or reducing the effects of MR. MR is caused by genetic defects, environmental effects, or socio-environmental effects. Seventy-five to eighty percent of MRs are mildly retarded, and 20% to 25% are more severely impaired. Progress in the identification of the causes of MR has been difficult in most cases because the etiological factors operate early in life. Poverty is an aggravating factor that predisposes a child to MR in varying degrees. Research progress has been made in the investigation of the effects of rubella, toxemia, other viruses, poisoning, malnutrition, and injury. However, the present incidence of MR indicates that society, especially economically disadvantaged groups, has not made optimal use of available knowledge. Within the past 12 years, genetic and biochemical information has developed which can be used in counseling, prediction *in utero* of the birth of defective or normal offspring, and early diagnosis of child defects. Recent research has resulted in the potential elimination of Rh incompatibility disease.(No refs.) *M. Lender.*

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1503 DYBWAD, GUNNAR. New advances in the field of mental retardation. *Australian Children Limited*, 3(5):136-148, 1968.

Although new trends and developments in MR are occurring all over the world, no country has reached an adequate level of services for all MRs. Increased recognition is being given to complexity of causation, diagnosis, and treatment, and many nations stress early intervention and prevention of MR. Noticeable progress has been made in the quantity and quality of education for lower level MRs, and education programs beyond the elementary level have been expanded. Unfortunately, physical education is generally underemphasized (except in the USSR), and classes for adolescents usually deal with material designed for younger children. Other unfortunate trends are variations in teacher training and a lack of teacher exchange between countries. However, changes in attitudes, residential care planning, and concern for the retarded adult; behavior modification programs; and manpower development are promising trends. (No refs.) *J. M. Gardner.*

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1504 A team research into mental deficiency (Part II) translated by Marie L. Jameson. *Clearing House Journal*, Issue 9:42-68, 1968.

A review of the research carried out by the psychological team at the Henry Rouselle Hospital emphasizes that IQ data alone are insufficient for diagnosis or prognosis of MR, that the MR should be distinguished from normals and other defectives, and that prognosis is not merely diagnosis projected into the future. MR children exhibit a disparity between MA and CA, different physical and brain tissue development, and difficulty in adapting. The Binet-Simon, spelling, and double maze tests were used to see if the nature of the responses of MR and normal children were the same at equal developmental levels. The qualities of a particular mental level were not the same for MR and normal children. Heterochronicity appears to be a proven feature of MR children and provides a guide for the explanation of MR mentality and behavior dynamics. The psychomotor and

intellectual development of an MR child build up a form of behavior which is not characteristic of any age group. On tests with geometric figures, MRs could understand but could not construct when they did the test spontaneously and exhibited performances approximately equal to those of normals when an explanation was given. An MR child is much more susceptible to external disturbances to reasoning than is a normal child. EEG data indicate that slowness of brain rhythm is in direct proportion to low MA for Ss of the same CA. Prognosis for MR children depends on the criteria of deficiency and the degree to which these criteria are discernible during childhood. (No refs.) - *V. G. Votano.*

1505 PEVZNER, M. S. Main trends in studying the problem of oligophrenia. In: Richards, B. W., ed. *Proceedings of the First Congress of the International Association for the Scientific Study of Mental Deficiency,* held Montpellier, France, September 12-20, 1967. Surrey, England, Michael Jackson Publishing, 1968, p. 740-741.

Oligophrenia is a non-progressive type of abnormal development in which there is a deficiency of cognition and underdevelopment of the whole personality. For the purposes of classification, 5 forms have been delineated. The first form is characterized by underdeveloped cognition with relative intactness of the emotional-volitional sphere; the second by underdeveloped cognition, reduced capacity for work, and behavioral changes; and the third by underdeveloped cognition, speech disorders, and motor disorders. These 3 forms are due to exogenous factors. The fourth form is characterized by underdeveloped cognition and psychopathic behavior and is due to genetic and exogenous factors. The fifth form is characterized by underdeveloped cognition and behavioral peculiarities and is caused by sex chromosome aberrations. (No refs.) - *M. G. Conant.*

1506 Declaration of general and special rights of the mentally retarded. *ILSMH (International League of Societies for the Mentally Handicapped) Newsletter,* Brussels, Belgium, Number 7, 1969.

The United Nations' declaration of the rights of the child states that mentally, socially, or physically handicapped children are entitled to special treatment, care, and education. Specific rights of MRs proclaimed by the International League of Societies for the Mentally Handicapped include medical care, physical restoration, education, rehabilitation, guidance, economic security, legal aid, protection, leisure time activities, and a meaningful occupation. MRs have a right to reside with their families or with foster parents and to take part in all aspects of life in the community. Institutional surroundings should be as close as possible to normal living. The most important right of MRs is the right to respect. (No refs.) - *V. G. Votano.*

1507 CORONADO, JIMMY S., ELLIOTT, THELMA, ALFRED, LARRY, & DENA, JESUS. The impact of cultural deprivation on the mentally retarded. *PCMR (President's Committee on Mental Retardation) Message,* Number 14 (September):1-10, 1968.

Four accounts by individuals directly involved in the battle against MR which results from cultural deprivation are presented. A Neighborhood Youth Corps director whose cultural deprivation as a Spanish-speaking child was deepened by attending an English-speaking primary school, relates his own experiences and similar experiences encountered when he later worked among the poverty-stricken and culturally deprived in San Antonio. A former juvenile court caseworker (12 yrs) and current director of social work services describes her participation in Project Education, Neighborhood Action for Better Living Environment (ENABLE). Project ENABLE advocates escape from "genetic poverty" (poverty continuing from one generation to another) and promotes non-professional subjective action by individuals indigenous to genetic poverty. In Robstown, a VISTA volunteer who works with impoverished Mexican-American families which have an unusually high percentage of MRs (often 2 out of 9 children) recognizes the need for and the difficult task in educating these primarily illiterate parents, the dire necessity for MR neighborhood community centers and the indispensability of community participation. Prenatal and pediatric care are stressed by a Head Start participant who is representative of Mexican-Americans caught in the cycle of MR resulting from cultural deprivation. She suggests educating pregnant women who do not eat properly during pregnancy, whose babies are delivered by *parteras* (midwives), and who cannot read numbers to prepare formulas. All 4 presentations illustrate the need for positive action toward the elimination of cultural deprivation. (No refs.) - *V. R. Shaffer.*

1508 WERTHEIM, ELEANOR S. The changing outlook on mental deficiency--Some aspects of assessment. *Australian Paediatric Journal*, 4(4):280-287, 1968.

Mental deficiency and its causes must be understood before it can be assessed. The modern concept of intelligence includes an understanding of the effects of: hereditary, postnatal, and neurological factors; the interdependence of mental and emotional development; the interdependence of the child and the family; personality; differential rates of development; and environmental intervention. Important factors which are related to MR in the postnatal period are malnutrition, deficiency of sensory input, and defective mothering. The scope of assessment must be broadened to include: mental, biological, and environmental factors; developmental changes; performance fluctuation; and a variety of methods. The goals of assessment should be to detect handicaps or difficulties which can be alleviated or reduced by appropriate intervention. (17 refs.) - *V. G. Votano.*

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1509 KAUPPI, DWIGHT R., & WEISS DAVID J. The utility of classification systems in the rehabilitation of the mentally retarded. *Journal of Special Education*, 2(4):361-367, 1968.

A classification system for MRs should be a guide which permits a complete analysis and understanding of the individual including intellectual and psychomotor capabilities, personal strengths, experiences, and total potential and limitations. It should also affirm that persons assigned to a specific category are different from persons outside that category. MR should not be interpreted as a classification which has broad implications for a variety of abilities. IQ test data indicate that serious errors can be made when important educational or vocational decisions are based on an MR classification. MR is a construct, and its validity can be evaluated by investigating the degree to which it correlates with other behavioral variables. Testing and evaluation for the purpose of classification have not resulted in increased communication, improved treatment, or more accurate prediction. Methods which will provide reliable descriptions of individuals in those areas which are relevant to important functions and measurements of the relevant variables of individual differences are needed. (28 refs.) - *B. Parker.*

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1510 PATIL, KAMAL A. New approach to adaptive behavior classification of the retarded. *Welfare Reporter*, 20(1):26-29, 1969.

The adoption of social competence as the criteria for the legal classification of MR is re-examined. In the light of experience in an institutional setting, it was suggested that 2 parallel scales should exist: one to measure potential community adjustment and the other to measure actual institutional adjustment. (4 refs.) - *J. M. Gardner.*

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1511 MITCHELL, KENNETH R. The case of severe disability as a special psychological problem. *Rehabilitation in Australia*, 5(4): 12-14, 1968.

The terms disability and severe disability present problems of definition. In general, disability refers to a wide range of psychological and physical functional impairments which have some objective basis in fact and are usually (though not always) associated with a medical cause. A disability differs from a handicap, which generally refers to reduced levels of functioning due to the cumulative effects of various factors. Not all handicaps are disabilities, and not all disabilities are handicapping. The medical classification of severe disability refers to long standing conditions without regard to degree of impairment, while social definitions empnasize degree of impairment regardless of duration. The rehabilitation definition represents a compromise--a person is considered to be severely disabled if his physical or psychological condition seriously impairs his long range economic goals. This definition requires the identification of the origins of the disability and the psychosocial context of the environment. Better psychological assessment and more appropriate counseling and psychotherapeutic services, particularly during the early, chronic stages of severe disability (6 to 12 mos), are important in rehabilitation for the severely disabled. (6 refs.) - *J. M. Gardner.*

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1512 CLARK, ANN D. Perception: An approach to a definition for special educators. *Winnower*, 5(1):24-27, 1969.

Perceptual learning is defined as the development of a meaningful awareness of the environment by using the senses to integrate stimuli, and perceptual impairment is defined as an inability to achieve this awareness which is due to the impairment of more than one sensory modality. Children who are classified as perceptually impaired by this definition are not MR and do not have handicaps which fall in special education categories. They are unable to use environmental stimuli to learn and are labeled as hyperactive and unable to concentrate. Since the behavior of perceptually impaired children is usually inconsistent, the teacher must be aware of the components of perceptual learning and impairment and should use diagnostic data to design individual remedial programs. (3 refs.) *M. Plessinger.*

No address

1513 RAMANUJAM, B. K. Pediatrics, child development and mental retardation. *Indian Journal of Mental Retardation*, 1(1):38-47, 1968.

Pediatricians and child development experts in India must improve communication to remove the causes of MR and educate parents in child development. The causes of MR include congenital malformations, drugs and infectious diseases (measles) during pregnancy, and malnutrition, which is prevalent in India. Children with poor sight or hearing are sometimes mistakenly diagnosed as MR. Various developmental steps such as smiling, eye focusing, teething, crawling, sitting, walking, and talking must be mastered between birth and 3 years. Parents must be taught to help the child overcome his limitations, and they must provide meaningful stimulation and guard against pushing the child beyond his capabilities. (No refs.) - *V. G. Votano.*

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1514 PAYNE, DAN. Regional cooperation in mental retardation data collection. *Mental Retardation/MR*, 6(1):52-53, 1968.

Data collected from 13 institutions for the MR detailed the medical, social, and behavioral characteristics of the 14,798 residents. A Population Census Standard Form was the instrument used for data collection. The form provided information on resident identification, program, and behavioral characteristics. It was completed by the ward staff. Results showed that 55% of the residents were male, 13% represented minority groups, 7% had hearing disabilities, 15% had vision difficulties, and 39% could not speak. The MR of 15% was due to uncertain causes with functional reaction manifest. The mean IQ of the sample was 29, 22% had to be completely fed, 63% were not eligible for school programs, and 58% had never gone home to visit their families. Mean length of institutionalization was 11 years, and mean CA was 23 years. Quantitative data of this type emphasizes the number and nature of the major problems of state institutions for the MR. The form is constructed so that the data collected can be processed by computer. (3 refs.) - *V. G. Votano.*

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1515 JACOBS, JERRY. *The Search for Help: A Study of the Retarded Child in the Community*. New York, New York, Brunner/Mazel, 1969, 135 p. $5.95.

This study of the past, present, and projected development of 14 MR children (CA range 4 to 8 yrs) includes data on medical, educational, and familial interactions and their effects on the children, their parents, and their siblings. The sample included 10 mongoloids, and 1 each of Turner's, CP, schizophrenia, and unknown etiology. All Ss attended a preschool for MR children, and most were non-verbal. Parents reported unsatisfactory interactions with physicians which were characterized by confusion and painful exchanges. A review of the educational experiences of these children indicated that educational programs for MRs need revision. Preschool teachers reported that specialized training had little relevance in actual teaching situations. Fathers were more adversely affected than mothers by an MR child, tended to be overprotective and secretive, and were less able to accept a diagnosis of MR. However, parents tended to view an MR child as a binding influence on the family. Siblings were helpful and understanding and played well with the MR child. However, they viewed the MR child as incapable of growing up, and their interactions did not progress to more elaborate and advanced educational and social forms. Recommendations for physician training and educational programs are included. Research on MRs indicates that well-known

facts about MR should be re-evaluated and/or held in abeyance and attempts to understand and assist the MR should proceed from a more neutral and optimistic standpoint. This book should be of interest to physicians, educators, psychologists, psychiatrists, social workers, and parents of MRs. (No refs.) *J. K. Wyatt.*

Contents: Problems of Diagnosis and Prognosis; Parents, Practitioners and Outlooks; Educating the Retarded: Programs and Prospects; The Child's Effect upon the Family; Current Anxieties and Future Expectations; Summary and Conclusions.

1516 KOTT, MAURICE G. Estimating the number of retarded in New Jersey. *Mental Retardation/MR,* 6(1):28-31, 1968.

Estimates of the present and future numbers of MRs who require special programs must consider factors such as: the reduction of prematurity and neonatal death; increases in the number of illegitimate births, working mothers, life expectancy, and urbanization; and the decrease in population/household. Additional factors which should be considered include the effects of prevention methods, changes in public attitudes, and the particular portion of the population affected by MR. The Index of Service is a technique for estimating needs in selected service areas. It is based on the known number of MRs who receive services in a specific geographic area and on age-specific rate of need. Examples of this methodology are discussed. (10 refs.) *V. G. Votano.*

No address

1517 KUPPUSWAMY, B. A survey of mental retardation among children enrolled in middle schools of Mysore City. *Indian Journal of Mental Retardation,* 1(1):12-19, 1968.

The incidence of MR in second, third, and fourth grade children in the middle school system of Mysore City (India) was determined. Ten percent of the children in each class in each school were randomly chosen for group intelligence testing (589 boys, 402 girls). The Ss were receiving instruction in 3 different mediums (Kannada, Urdu, and English). The lowest scoring 5% were individually tested with the Seguin Form Board and the Knox Cube Imitation Tests. Children who scored in the retarded range on these tests were then given the Binet Scale--Kamath's revision (Kannada) modified and the Raven's Progressive Matrices test. Of 45 Ss chosen for individual testing (38 Kannada, 7 non-Kannada), 14 scored within the retarded range (10 mildly and 4 moderately retarded). There was a tendency for retarded Ss to come from the lower socioeconomic groups, and there were no differences between castes in terms of the Ss selected for individual testing. The 1.4% incidence of MR revealed by this survey corresponds with Scottish and American data. (7 refs.) - *J. M. Gardner.*

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1518 FRENCH, FERN E., CONNOR, ANGIE, BIERMAN, JESSIE M., SIMONIAN, KENNETH R., & SMITH, RUTH S. Congenital and acquired handicaps of ten-year-olds--Report of a follow-up study, Kauai, Hawaii. *American Journal of Public Health,* 58(8):1388-1395, 1968.

A 10-year follow-up study of 1,012 children originally studied prenatally to 2 years old confirmed previous diagnoses and revealed emotional problems in 13%, educational problems in 39%, and physical-sensory handicaps (PSH) or MR in 6.6%. At age 2, 844 Ss were free of serious physical or mental handicaps. At follow-up, this number was reduced to 832 and to 660 when educational or emotional problems were included. School, public health, physician and hospital records; teacher questionnaires; parent interviews; and intelligence tests were used to obtain data on the Ss. Of 21 Ss with severe PSH without MR at age 2, 17 were confirmed at age 10, and 8 Ss with both PSH and MR (median IQ below 40) at age 2 were confirmed at age 10. All 9 Ss with MR without PSH at age 2 were confirmed at follow-up, and their median IQs had increased from 64 to 77. Most Ss with less severe defects at age 2 had been treated by the time of follow-up. Eighteen Ss with congenital defects which had not been previously noted were found, and 16 Ss had acquired defects. Hearing loss was found in 8 Ss and visual impairment in 12 Ss at age 10. Furthermore, at follow-up over 1/3 needed either long-term remedial educational or mental health services, or both. These findings demonstrate the value of a complete physical-sensory and psychological screening during the early years of development. The high incidence of educational and emotional problems indicates that these areas should receive at least as much attention as physical health. (10 refs.) - *E. Gaer.*

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1519 MOHR, MARY ANDREA. A critical study of movements which affected change in attitudes toward the education of the mentally retarded in the United States. *Research Abstracts: Cardinal Stritch College*, 9:72-75, 1968.

Government periodicals, documents, interviews, agencies, and legislation were evaluated to identify the influences and movements which were vital forces in increasing interest in the education of MR children in the United States. The Parent Movement of the National Association for Retarded Children was the most influential factor in the communication of the information that society would eventually benefit from the education of the MR. Changes in attitudes toward education for the MR included: the philosophical move from hope to caring, happiness, sharing, and participation; the provision of a continuum of care; advanced education for teachers; the development of didactic teaching methods, sensory training, and standardized tests; and the use of especially designed classrooms. (No refs.) *V. G. Votano.*

No address

1520 KILBURN, KENT L. Expressed attitudes toward mental retardation. *California Mental Health Research Digest*, 7(2):66-67, 1969.

A questionnaire was used to measure the attitudes of 326 volunteers from college sociology classes, 95 psychiatric technicians, and 50 undergraduate college students with respect to the decentralization of state (California) services for the MR. The questionnaire contained 45 attitude items and 10 biographical items which included sex, age, education, contact with MR, and residence. A Likert-type rating scale was used. There were no marked differences in item response either within or between samples. Factor analysis revealed significant factors of: MR, hospitals for the MR, child rearing practices, and state versus local care for the MR. Socially desirable responses were easily distinguished by the Ss. Since they lacked highly organized attitudes toward the MR (perhaps because of social distance), their responses drifted toward social desirability. (No refs.) - *J. King.*

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1521 MUNDEL, GEORGE. The old beliefs and the cerebral palsied. *Rehabilitation Record*, 9(5):16-21, 1968.

A study of 196 families with a CP child who represented 9 ethnic groups in Israel revealed that the attitudes of Israeli Jews toward a CP child are dependent on the nationality of the family. Communities from Iraq and Yemen tended to attribute CP to the will of God, while Polish and Rumanian Jews related CP to medical factors. Yemenite parents used traditional methods of healing and were generally accepting of the handicap, while Morrocans and Persians blamed CP on evil spirits. Data were obtained on parent attitudes and on the family's medical and socioeconomic history. A parent interview focused on the parents' understanding of the child's disability, their feeling toward the child, and the relationship between the family and the social environment. (8 refs.) - *V. G. Votano.*

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1522 CRANDALL, JOHN M., JR. The genesis and modification of attitudes toward the child who is different. *Training School Bulletin*, 66(2):72-79, 1969.

Attitudes are defined as a special class of concepts in which affective components predominate. Concepts are viewed as mental structures in which affective, cognitive, and behavioral components are present in varying amounts. It is postulated that affective components arise from perceptions of environmental perceptions which are ambiguous, incongruous, or strange. Exceptional children (those with physical or behavior deviations) are cited as examples of affects arousal. Although one's reactions to these elements may be changed through learning, they are fundamentally reflexive and are more difficult to change than are cognitive or behavioral elements. Evidence from research in the behavioral science is presented which tends to support the theory. Suggestions are made for modifying attitudes through either varying the levels of cognitive and behavioral components, or through providing affective experiences which will change negative affect to positive. (16 refs.) - *Journal abstract.*

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1523 NICHOLS, ROBERT C. Heredity, environment, and school achievement. *Measurement and Evaluation in Guidance*, 1(2):122-129, 1968.

The variables of education, family environment, and genetic inheritance appear to influence school achievement. Studies of school effects indicate that differences in school experiences do not have much relationship to student performance. Family and genetic factors seem to be major contributors to individual differences in ability. Early experiences seem to have a very important effect on later behavior, and major effects may occur before the age of 3 or 4. Birth order may be of major concern since data indicates that the performance of first-born children tends to be higher than that of other siblings. This may be due to: the physiological effects of a more difficult birth or younger age of the mother on intelligence; differential family environment; or some unexplained influence(s). A study of 800,000 students who took the National Merit Scholarship Qualification Test showed that earlier born students had higher average test scores. This applied to all family sizes and to boys and girls. Spacing of siblings appeared to be an influential factor in that the closer in age the nearest sibling, the lower the test score. Genetic factors may be a major determinant of individual differences in ability. Data from studies of twins and adopted children support this assumption. Variables which affect school achievement may be roughly ordered from most to least important as genetic factor, family factor, and school factor. (17 refs.) - *B. Bradley*.

National Merit Scholarship Corporation
Evanston, Illinois 60201

1524 BAKER, MADELINE, FISCHETTI, MICHAEL A., & YOUNG, EDDIE M. Where we stand on architectural barriers. *Rehabilitation Record*, 9(1):1-4, 1968.

In spite of the progress made in all states toward the elimination of architectural barriers from public and privately-owned buildings, a great deal remains to be done. State legislation is only as effective as its enforcement. Very little has been done at the local level and has affected only new, publicly owned buildings. Widespread public awareness of the problem, the impressing of all architects with the need for barrier-free design, and concerted and continued efforts by individuals and groups interested in the handicapped are necessary to influence legislators and others responsible for initiating and implementing such programs. (No refs.) - *E. F. MacGregor*.

No address

1525 AUSTRALIA. STANDARDS ASSOCIATION. *Design for Access by Handicapped Persons: Part I--Public Buildings and Facilities*. North Sydney, New South Wales, Standards Association of Australia, 1968, 24 p. $1.00.

This code of the Australian Council for Rehabilitation of the Disabled in association with the Standards Association of Australia provides recommendations for the design of public buildings to provide easy access for the handicapped. General design information includes identifying necessary facilities, establishing their dimensions, and determining the space required for crutches and wheelchairs. Exterior spaces which should be considered include approaches, paths, curb crossings, parking areas, ramps, and lighting. Entrances, doors, door closers, ground floor facilities, corridors, vestibules, ramps, stairs, handrails, elevators, floors, toilet facilities, basins, and bathing facilities should be designed with the handicapped in mind. Diagrams illustrate dimensions which will provide easy access for the handicapped. (No refs.) - *V. G. Votano*.

1526 NORRIS, DAVID. Architecture and mental subnormality:V--The environmental needs of the severely retarded. *Journal of Mental Subnormality*, 15, Part 1 (28):45-50, 1969.

The environmental needs of SMRs should be considered before facilities are constructed for them, and an experimental model should be constructed by the government so that environmental effects can be refined and evaluated. Since the environmental needs of many SMRs are basically similar to those of normal children, SMR training centers must meet similar environmental requirements. SMRs need opportunities to explore and play together and alone, and they need a structured atmosphere of informality. The school architect should be aware of the range of activities in which the SMR children will be involved. These include opportunities for social contact and solitude, physical activity which does not disturb others, short periods of 1:1 remedial training, training for the physically handicapped, and therapy. Facilities should be flexible and capable of expansion. Defects in 33 new training centers include omissions of: a home economics and art room (33%); sanitary facilities for the physically handicapped

(64%); an outdoor sandbox (91%); a separate medical room (52%); and a covered play area (76%). These defects demonstrate a lack of sensitivity to the needs of SMRs. The designs of facilities are often educationally insensitive and lack aesthetic stimuli. Halls should not be used for group activity, and facilities should be on one floor. Playrooms should have nooks for individual play, interesting open play areas, and ceilings of varied height and color. Color and texture should be used, and rooms should be of different shapes. (8 refs.) - *M. Plessinger.*

Centre for Social Studies
Bournemouth College of Technology
Bournemouth, England

1527 GUTSHALL, ROBERT W., HARPER, CHARLES, & BURKE, DONALD. An exploratory study of the interrelations among driving ability, driving exposure, and socioeconomic status of low, average, and high intelligence males. *Exceptional Children,* 35(1):43-47, 1968.

The relation between driving ability and the socioeconomic status of males classified as low (approximate mean IQ 73.5), average (approximate mean IQ 101.5), or above average (approximate mean IQ 119.5) intelligence was determined in an analysis of Michigan driving records. The driving records of former EMR high school students were compared with those of former students with average and above average intelligence. Information on driving exposure was obtained from personal interviews with the Ss, while driving ability was determined by examining state driving records. Intelligence and socioeconomic status were related to total number of violation points for a 5-year period. The low IQ group had the highest mean number of violations and accidents. However, low intelligence was not a significant factor in number of violation points accumulated for speeding. Ss from high socioeconomic groups obtained more speeding violations than low groups. Ss in the low IQ group had more points for violations other than speeding than Ss in the average or above average IQ groups. Analysis of miles driven/year did not show significant between-group differences; however, the low IQ group spent significantly (.01 level) more hours in the car than the other groups. The low intelligence group varied significantly (.10 level) from the average IQ group on combined accidents and violations but did not differ significantly from the high intelligence groups on these factors. (15 refs.) - *B. Bradley.*

Muskegon Area Intermediate
School District
Muskegon, Michigan 49400

1528 NATIONAL SOCIETY FOR AUTISTIC CHILDREN. *Forgotten Teenagers.* London, England, February, 1969, 9 p. Mimeographed.

In Great Britain there are limited facilities for autistic children (under CA 16 yrs), and no facilities at all for the estimated 4,000 autistic teenagers who may be forced into institutions for the mentally subnormal because education is unavailable. Almost all autistic teenagers could benefit from special education in social skills and vocational training. Special centers should be developed so that they may live in a hostel or with their own families, continue their basic education, and be trained for useful work. (No refs.) - *E. L. Rowan.*

1529 ZIAI, MOHSEN, JANEWAY, CHARLES A., & COOKE, ROBERT E., eds. *Pediatrics.* Boston, Massachusetts, Little,Brown, 1969, 967 p. (Price unknown).

The diseases of childhood are discussed from pathophysiology through practical management. Numerous tables summarize important points, and an appendix covers the differential diagnoses of 27 significant symptoms. An extensive drug index with dosage by weight and a table of normal laboratory values are included. (863 refs.) - *E. L. Rowan.*

CONTENTS: The Well Child and His Physician; The Sick Child and His Physician; Pediatric History and Physical Examination; Physical Growth and Development; Physiological and Pharmacological Aspects of Development;Mental Development; Prenatal Development; The Endocrine Glands; Metabolic Disorders; Nutrition; The Newborn Infant; The Neck, Ears, and Respiratory System; The Heart and Great Vessels; The Abdomen and the Gastrointestinal Tract; The Genitourinary System; The Nervous System; The Musculoskeletal System; The Blood; Neoplastic Diseases; Collagen Diseases; Infectious Disease and Immunity in the Child; Bacterial Infections; Viral Infections; Rickettsial, Mycotic, and Protozoal Infections; Spirochetal Infections; Parasitic Infections; Allergic Conditions; The Mouth; The Eye; The Skin; Mental and Emotional Disorders; Emergencies, Trauma, and Poisonings.

1530 RICHTER, G. W., & EPSTEIN, M. A., eds. *International Review of Experimental Pathology. Volume 7.* New York, New York, Academic Press, 1969, 441 p. $24.00.

Experimental pathology investigates cell ultrastructure and animal models in the study of the natural history of disease and the

results of intervention. Seven separate reviews consider these approaches. *In vivo* and *in vitro* methodologies are used to determine the length of the cell cycle and its 4 phases in mammalian cells. Sex chromosome aneuploidy is associated with MR, mortality, fertility, and behavior disorders. Microphotoalteration affects not only organelles within cells but also single cells among a population. Studies of the ultrastructure of normal and pathological muscles may lead to an understanding of the mechanisms of altered function. A strain of Japanese rats develops spontaneous hypertension with marked vascular changes and is a suitable model for the study of essential hypertension in man. Diabetic angiopathy is apparently a consequence of metabolic disease. Electron microscopic changes are visible in hepatic endoplasmic reticulum when physiologic and biochemical manipulation is used to modify the structure and function of the liver. Each article presents a complete review of a complex field. (1,208 refs.) - *E. L. Rowan.*

CONTENTS: The Cell Cycle of Mammalian Cells; Sex Chromosome Aneuploidy in Man and Its Frequency, With Special Reference to Mental Subnormality and Criminal Behavior; Partial Cell Irradiation by Ultraviolet and Visible Light; Conventional and Laser Sources; Recent Contributions of Electron Microscopy to the Study of Normal and Pathological Muscle; Spontaneous Hypertension in Rats; Diabetic Glomerulosclerosis: A Comparison Between Human and Experimental Lesions; Structural and Functional Changes of the Endoplasic Reticulum of Hepatic Parenchymal Cells.

1531 LUHAN, JOSEPH A. *Neurology: A Concise Clinical Textbook.* Baltimore, Maryland, Williams & Wilkins, 1968, 526 p. $13.00.

This text was written for medical students and residents and combines a brief and practical approach to neurological disorders. The anatomical correlates of types of dysfunction (such a motion, sensation, or speech) which may be ascertained by history or clinical examination are considered in the first section. Clinical manifestations and differential diagnosis of common neurological problems (such as infection, cerebrovascular accidents, tumors, and epilepsy) are dealt with in the second section. A brief index of rare disorders is included. The book assumes that the reader has an understanding of basic neuroanatomy and is basically competent in history taking and neurological examination. It will serve the physician as a quick reference to common neurological problems. (385 refs.) - *E. L. Rowan.*

CONTENTS: Disorders of Motion; The Practical Significance of Reflexes, and of Electrical Examination of Muscles or Nerves; Disturbances of Sensation; Disturbances of Function in the Distributions of the Cranial Nerves, and Bulbar Palsy; Disorders of Language and of Articulation of Speech; Disorders of Consciousness; Metabolic, Endocrine, and Autonomic Disturbances of Pituitary and Hypothalamic Origin, Trophic and Vasomotor Disturbances of Neurogenic Origin; Localization in the Spinal Cord, Transverse Localization in Degenerative and Inflammatory Diseases, Vertical Localization in Cord Transecting Lesions and in Focal Gray Matter Lesions; Examination of the Cerebrospinal Fluid; Anatomical Supplement; Vascular Disease of the Central Nervous System; Intracranial Tumors and Space-Occupying Lesions; Infections of the Nervous System and Its Coverings; Neurosyphilis; Cerebral Trauma; Diseases of the Basal Ganglia; Cerebellar Disorders; Multiple Sclerosis and Other Primary Demyelinating Diseases; Subacute Combined Degeneration of the Spinal Cord and Vitamin B_{12} Deficiency Neuropathy; Neurogenic Muscular Atrophy; Compression and Injuries of the Spinal Cord, Spinal Tumors, Transverse Myelitis; Injuries and Compressional Disorders of Some Peripheral Nerves and Nerve Roots, and Intervertebral Disc Disease; Neuritis and Neuropathy; Myopathies; Infantile Cerebral Palsy and Congenital Hydrocephalus; The Epilepsies; Migraine; Neurological Manifestations of Some General Medical Disorders; An Index of Some Rare Diseases and Some Syndromes and Eponyms of Neurological Interest.

1532 SECRETARY'S COMMITTEE ON MENTAL RETARDATION. *Directory of State and Local Resources for the Mentally Retarded.* Washington, D. C., U. S. Health, Education and Welfare Department, 1969, 121 p.

This directory includes a checklist of state and local resources which provide specific services primarily for the MR in the United States, Guam, Puerto Rico, and the Virgin Islands. It includes MR state coordinating agencies, state agency administered programs related to the MR, special programs, nongovernment state resources, clinical programs, residential facilities, special facilities, and specialized rehabilitation facilities. (6 refs.) - *J. King.*

MEDICAL ASPECTS--DIAGNOSIS (GENERAL)

1533 CALCAGNO, PHILIP L. The importance of medical diagnosis in understanding a mentally retarded child. In: Waldon, Edgar F., ed. *Differential Diagnosis of the Speech and Hearing Problems of Mental Retardates.* Washington, D. C., Catholic University of America Press, 1968, p. 3-24.

Although professionals in many disciplines are concerned with the problems of the MR child, a medical diagnosis is an essential part of any evaluation. The family physician or pediatrician provides the sole evaluation for the majority of MR children. Early medical evaluations are important because they can result in the early identification of biochemical defects, the initiation of appropriate therapy, and/or manipulation of the environment to increase the use of limited capabilities. A medical evaluation includes a history, physical examination, laboratory studies, psychological testing, and assessment of speech and hearing deficits. (No refs.) - *J. K. Wyatt.*

1534 PAINE, RICHMOND S. Diagnostic evaluation of mental retardation. In: Waldon, Edgar F., ed. *Differential Diagnosis of Speech and Hearing Problems of Mental Retardates.* Washington, D. C., Catholic University of America Press, 1968, p. 35-66.

The etiology of MR can sometimes be identified through studies of chromosomes, genes, prenatal infections or insults, perinatal insult, and postnatal infections. Diagnostic data can be obtained through a medical history, physical examination, EEG study, psychological testing, skull X-rays, pneumoencephalography, arteriography, chemical studies of the blood, and urine tests. Special problems which should be investigated include PKU, lead poisoning, chromosomal anomalies, serum and cellular enzymes, degenerative diseases, and chromosomal syndromes. (No refs.) - *J. K. Wyatt.*

1535 NICHD's diagnostic and study branch examines retardation in young patients. *NIH (National Institutes of Health) Record,* 21(22):7, 1969.

The Children's Diagnostic and Study Branch of the National Institute of Child Health and Human Development (NICHD) has made detailed diagnostic studies of about 100 MR, physically handicapped children, and children with learning disabilities/year since 1965. A wide range of specialists cooperates in gathering the necessary information for diagnosis and program recommendations; the pediatrician acts as liaison to parents and concerned agencies. (No refs.) - *E. F. MacGregor.*

1536 INGRAM, T. T. S. The early recognition of handicaps in childhood. *Journal of Learning Disabilities,* 2(5):252-255, 1969.

Because of the need for early treatment, the early diagnosis of handicapping conditions is important. Advances in medicine, biochemical analysis, and psychological testing have led to the recognition of many handicaps during infancy. The use of "at risk" registers may facilitate this process. "At risk" registers consist of infants whose histories indicate a high probability of developing a handicapping condition. Some of the factors considered are congenital diseases, problems in delivery, and abnormalities during postnatal life. Although one factor may not be significant in itself, a combination of factors should alert the psychologist, physician, or other professional to consider carefully the child's developmental progress. (No refs.) - *J. M. Gardner.*

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388-623 O - 70 - 4

1537 Some aspects of the differential diagnosis and treatment of neurologically abnormal children: In residential schools in England. *Digest of the Mentally Retarded,* 5(1):57-61, 1968.

The relationship found between cerebral dysfunction, "at risk" birth, and perceptual problems suggests that many children's problems need to be classified as neurological pathologies rather than as mental dullness. As the diagnostic category "minimal cerebral dysfunction" becomes more accepted, better treatment should result. Clinical evidence based on slow learners (CA 8-14 yrs) shows a high incidence of "at risk" births and that most children born "at risk" were neurologically abnormal. Many Ss had difficulties in sensory channel integration, visual discrimination, memory, and spatial relationships. Differential diagnosis should be based on a full birth history and a comprehensive neurological examination rather than on intelligence tests. A dynamic interrelationship between diagnosis and treatment should result in the examination of growth in motor, sensory, perceptual, language, and thought skills. Diagnosis should be used to tailor treatment programs to the specific strengths and weaknesses of the individual child. Ideally, all children born "at risk" should be supervised by child development specialists for several years. Since up to 25% of births are "at risk," this type of follow-up would be a mammoth task; however, manpower could be shifted from maternity and child welfare departments to meet this need. Parent education could be used to reduce treatment problems. These children require intense multisensory training so that they may learn to live with and try to overcome their handicaps. (No refs.) *S. Markworth.*

No address

1538 ELLIOTT, LOIS L., & VEGELY, ANN B. Some possible effects of the delay of early treatment of deafness: A second look. *Journal of Speech and Hearing Research,* 11(4):833-836, 1968.

Possible effects of late identification and treatment for deafness were studied in students in a state-supported school for the deaf. Current information was taken from school records while pertinent background data were obtained from parent questionnaires. Data on 252 Ss (CA range 3 yrs 10 mos to 20 yrs 3 mos) without additional handicaps were obtained and compared with data on private school Ss obtained in a previous study. Severe hearing loss was associated with earlier detection for both public and private school Ss, and younger children tended to be identified earlier. While age of identification for deafness in Ss over age 8 years did not differ, the median age for first wearing a hearing aid was much later for public school Ss. All private school Ss wore aids while many public school Ss did not. Median age of school enrollment was later for public (CA 5 yrs) than for private (CA 3 yrs) school Ss. For public school Ss, no relation was found between school achievement and hearing level, age at which an aid was first worn, and age of enrollment in a school for the deaf. The hypothesis that early detection and treatment for deafness is educationally beneficial was not supported. (2 refs.) - *J. M. Gardner.*

Central Institute for the Deaf
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1539 PENROSE, L. S. Dermatoglyphics. *Scientific American,* 221(6):72-74, 79-84, 1969.

Dermatoglyphics is a valuable tool in the categorization of human variability and is extremely useful in the fields of anthropology, medicine, and genetics. Epidermal patterns begin to form on the fingers, palms, and soles about the twelfth week of gestation and remain unchanged throughout life. As a result of the evaluation of large groups of individuals, frequency distributions have been developed for ridge counts, ridge patterns, and palmar creases. Generally, the number of triradii plus one is equal to the number of loops plus the number of digits. There is an hereditary influence in pattern formation; however, environment and chance are also important factors. Patterns are disturbed when there is an insult to the fetus. Patients with chromosomal trisomies (21, 13-15, 17-18) show abnormal pattern frequencies, while those with sex chromosome disturbances (Turner's, polyploidy, and Klinefelter's) primarily show disturbed ridge counts. The latter suggests that early fetal edema (Turner's) results in swollen pads with a greater surface to cover with ridges and that disturbances in dermatoglyphic patterns may be primarily mechanical and secondarily genetic. (No refs.) - *E. L. Rowan.*

No address

1540 OSTWALD, P. F., PHIBBS, R., & FOX, S. Diagnostic use of infant cry. *Biologia Neonatorum,* 13(1-2):68-82, 1969.

Auditory assessment of cry patterns has a traditional usefulness in clinical evaluation

of the infant. Within the last decade acoustic studies have contributed more precise information about neonatal sound productions, specifically in regard to the properties of cries associated with different clinical states and disease conditions. The present study involves sonagraphic analysis of 356 expiratory cry utterances derived from 13 infants that on the basis of clinical data, behavioral development, and neurological status were classified as normal, impaired, or abnormal. Duration measurements showed no consistent differences between the 3 groups. Pitch measurements showed a marked increase of the fundamental tone only among infants rated as impaired or abnormal. It is postulated that this reflects a disorganization of innate adaptive mechanisms which assure that infants can elicit appropriate social responses from their environment. More thorough and detailed study of abnormalities in vocalization patterns within the first 6 months of life might be helpful in predicting results of subsequent language and intelligence tests, especially when there are early signs of neurological or developmental pathology. (42 refs.) - *Journal summary.*

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1541 VARDI, P. The predictive value of the neurological examination of the infant. *Child Health in Israel,* 5(June):17-21, 1969.

Infant neurological developmental stages can be used in the diagnosis and prognosis of brain-damaged children. Normal development at the key ages of newborn, 10 days, 3 months, 4 to 6 months, 7 to 9 months, and 11 to 12 months shows a standard progression in muscle tone, reflexes, awareness, and facial expressions. An early slow development may be linked with later learning difficulties. (No refs.) - *M. Plessinger.*

Health Unit
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Ashkelon, Israel

1542 BENSON, RALPH C., SHUBECK, FRANK, DEUTSCHBERGER, JEROME, WEISS, WILLIAM, & BERENDES, HEINZ. Fetal heart rate as a predictor of fetal distress: A report from the collaborative project. *Obstetrics and Gynecology,* 32(2):259-266, 1968.

The relationship between fetal heart rate (FHR) and fetal distress is not reliable as determined by information gathered from 24,863 labors which resulted in single births. Data were taken every 15 minutes during the first stage of labor and every 5 minutes during the second. FHR indicators included the lowest FHR for each fetus, the FHR variability, and the number of consecutive reductions in FHR. Control variables included birthweight, administration of maternal anesthesia, and the number of FHR observations made. The group with the greatest risk was the low birthweight group and in all groups at risk, increased use of anesthesia was noted. No conclusive evidence was found for the usefulness of FHR in measuring fetal distress. FHR measurements which relate to distress include the standard deviations of FHR, the maximum drop from the average FHR, and the number of consecutive drops. (16 refs.) - *V. G. Votano.*

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1543 SEEDS, A. E., & *BEHRMAN, R. E. Acid-base monitoring of the fetus during labor with blood obtained from the scalp. *Journal of Pediatrics,* 74(5):804-807, 1969.

Acid-base monitoring of the fetus during labor with blood obtained from the scalp should be considered primarily as an investigative tool at the present stage of development. The method of sampling the blood and subsequent determinations of pH and pCO_2 involve many inherent limitations; however, careful analysis of the laboratory results could provide an early indication of fetal distress. Fetal pH is probably a more reliable indicator than pCO_2 or pO_2 for predicting fetal distress; fetal pH below 7.15 in the presence of normal maternal values is correlated with fetal distress and may demand obstetrical intervention. Such monitoring may also avoid unnecessary surgical operations in cases of changed fetal heart rate or meconium in the amniotic fluid in the absence of fetal hypoxia. However, scalp blood monitoring needs more research before it can be justified as a routine adjunct in the practice of obstetrics. (10 refs.) - *L. S. Ho.*

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1544 MILIC, ANN M. B., & ADAMSONS, KARLIS. Fetal blood sampling. *American Journal of Nursing*, 68(10):2149-2152, 1968.

Fetal blood sampling is used to monitor patients in whom the probability of fetal compromise is higher than average. The sampling method used is a modification of the Erich Saling technique in which a prepared area of fetal skin is superficially punctured and blood droplets are collected in a heparinized glass tube. The mother is positioned for a vaginal examination; an endoscope is placed into the cervical canal and positioned against the fetal presenting part. Under direct vision the exposed portion of fetal skin is dried and sprayed with ethyl chloride which causes a hyperemia of the area. A cutting blade set in a long handle is used in making a puncture incision. The blood is collected anaerobically in a glass tube and the incision site compressed with a dry cotton swab and observed for hemostasis. Fetal distress signals, irregular fetal heart beat, meconium staining of the amniotic fluid, or a familial history suggesting increased fetal risk should be indications for continual monitoring of the fetal state. (18 refs.) *F. J. McNulty.*

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1545 WINGATE, M. B. Anatomic studies on midtrimester abortions. *American Journal of Obstetrics and Gynecology*, 102(6):901-902, 1968.

Eleven of 47 fetuses from 45 midtrimester abortions had congenital abnormalities; 8 of these had more than one anomaly. One case each of trisomy 18 and trisomy 21 were found. The 45 patients ranged in age from 19 to 40 years; 5 abnormal fetuses were from patients less than 30 years and 4 were from patients who were over 30 years of age. Medical and familial histories were non-contributory in all cases, and there were no environmental factors which could be isolated in the etiology of these abortions. Possible etiological factors may include the presence of an abnormal nucleic acid metabolism, small chromosomal deletions, inversions, or translocations, or a structural change in one gene or a single group of genes. None of these factors can be detected by present chromosomal study methods. (4 refs.) - *M. D. Nutt.*

Departments of Pathology and
Medicine
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1546 NADLER, HENRY L., & GERBIE, ALBERT B. Enzymes in noncultured amniotic fluid cells. *American Journal of Obstetrics and Gynecology*, 103(5):710-712, 1969.

Amniotic fluid analyses of specimens obtained by transabdominal amniocentesis from 12 women (12 to 36 wks of gestation) revealed that all 11 enzymes studied were detectable. The supernatant from centrifuged amniotic fluid was immediately frozen and the cell pellet was divided for cultivation and biochemical analysis. The cells were rinsed 3 times, resuspended, and homogenized by freezing and thawing 3 times. Enzymes studied were acid and alkaline phosphatases, α-glucosidase, arginase, β-glucuronidase, galactose-1-phosphate uridyl transferase, glucose-6-phosphate dehydrogenase, hypoxanthine guanine phosphoribosyl transferase, lactate dehydrogenase, ornithine transcarbamylase and 6-phosphogluconic dehydrogenase. The studies were completed within 6 to 12 hours after obtaining the specimens. Cells obtained prior to the twentieth week of pregnancy showed the highest enzyme activity; cells obtained later in the pregnancy had low or no enzyme activity. The ease, accessibility, and rapidity with which this procedure can be performed should prove it a valuable tool in screening for genetic disorders. (23 refs.) *A. Huffer.*

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1547 MAYNARD, C. DOUGLAS, & KELSEY, WESTON M. Brain scanning in the pediatric age group. *Developmental Medicine and Child Neurology*, 11(1):69-76, 1969.

Between January 1964 and January 1967, 130 children had brain scans with Technetium-99m pertechnetate at the North Carolina Baptist Hospital. There were 38 positive scans among this group; 25 children were proven to have intracranial neoplasms and the brain scan localized 20 (80%) of these. Of the 14 tumors located in the posterior fossa, 13 were visualized for an accuracy of 93%. Only 7 of 11 supratentorial tumors were demonstrated (63% accuracy). Other lesions, such as A-V malformations, cerebral infarction, brain abscesses and meningitis gave positive scans. (10 refs.) - *Journal summary.*

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Forest University
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MEDICAL ASPECTS--PREVENTION AND ETIOLOGY (GENERAL)

1548 CLARKE, A. D. B. *Recent Advances in the Study of Subnormality*. Revised edition. London, England, National Association for Mental Health, 1969, 44 p. $0.84.

Advances in the prevention and amelioration of mental retardation have come from research on prevention, genetic counseling, "at risk" registers, and increased maternal care. Treatment of MR can involve educational, social, medical, and administrative programs. Research on the mildly retarded has centered on the sociocultural causes of retardation and the accompanying emotional disturbances. Research on the severely retarded has involved operant conditioning, discrimination learning, memory, generalization, special class opportunities, language, distraction, and occupational therapy. For the immediate future there appears to be 3 areas to be dealt with: the shortage of research workers; the dissemination of research findings; and the increase in public awareness of the needs of the retarded. (131 refs.) - *J. M. Gardner.*

1549 SCHIMKE, R. NEIL. *Inheritance and Mental Retardation*. New York, New York, National Association for Retarded Children, 1969, 8 p. (Price unknown).

Because MR can be inherited, genetic aspects should be studied and defined since the cost to society is high. A genetic error can often be detected in prospective parents or the unborn child, and some metabolic disorders caused by such errors can be successfully treated. If the defective gene is dominant, the disorder will occur in most offspring of parents who carry the gene. If the gene is recessive, then the defect is much less likely to appear in offspring. X-linked diseases are inherited through the mother and are expressed in their sons; however, daughters may carry the gene. Chromosomal imbalance may cause MR, but such aberrations are usually not inherited. Diet and drugs may be used to treat but they cannot cure chromosomal aberrations. (No refs.) - *M. Plessinger.*

1550 DRILLIEN, C. M. Studies in mental handicap. II. Some obstetric factors of possible aetiological significance. *Archives of Disease in Childhood*, 43(229):283-294, 1968.

Obstetric factors were not implicated in MR children (IQ 55-69) from poor or very poor homes, whereas MR children from middle-class homes showed an increase in obstetric factors such as low birthweight, premature delivery, pregnancy complications, and maternal infertility. In a sample of 406 MR children in which 1/3 had clearly defined syndromes and/or definite causes of handicap, 17% had mongolism, 10% had other well defined conditions including kernicterus, and the MR of 6% was of postnatal origin. Cause of handicap in 2/3 of the Ss was obscure; 31% of these had neurological defects and/or developmental anomalies, and 36% had no detectable defects other than minor anomalies of common occurrence. Of 125 children with developmental anomalies, cerebral palsy and/or epilepsy, more serious and/or less common developmental anomalies were present in 56%. Findings suggest that severe complications of labor and delivery were not responsible for mental handicap but might have caused additional cerebral damage which resulted in epilepsy and/or cerebral palsy. The presence of developmental anomalies which had arisen at an early stage of intrauterine existence (even when these anomalies were not the cause of mental handicap) suggests that the total handicap picture may be due to adverse factors which operated during early pregnancy rather than to the effects of later damage. The developmental malformations of pre- or postmature infants may have been due to some physiological disturbance (endocrine) in the mother. (15 refs.) - *F. J. McNulty.*

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1551 ROBOZ, PAUL, & PITT, DAVID. Studies on 782 cases of mental deficiency: Part II. *Australian Paediatric Journal*, 4(4):260-270, 1968.

The American Association on Mental Deficiency's classifications of MR (brain injury, metabolic disorders, and new growth) were studied in 105 cases; in all but 3, the level of MR ranged from moderate to severe and both primary anomalies and growth and development abnormalities were frequent and often multiple. Brain injury Ss included one with prenatal injury, one SMR epileptic whose mother had received pelvic deep X-rays in the first trimester, 10 antepartum anoxia cases, 14 Ss with proven and 35 Ss with suspected birth trauma. A higher percentage of first-born (51.1%) and prematures (26.1%) were noted in patients when compared with normals. In 50 of 59 cases, there were complications of pregnancy including hemorrhage, toxemia, and placental abnormalities. Neonatal symptoms included circulatory and respiratory disturbance (72%), convulsions (26%), irregular cry, inability to suck, lethargy, hypertonia, and tense fontanelle. There were severe neurological signs in 52, 48 had deformed and/or small heads, primary malformations were found in 18, and sensory defects in 19. All but 2 were TMR or SMR. The 11 cases of postnatal injury included 3 with acute hemiplegia, 3 with head injury, 2 with subdural hemorrhage, 2 with cerebral anoxia due to cardiac failure, and one with encephalopathy due to hemorrhagic disease of the newborn. Seizures, paralysis, and behavioral disorders were frequent. Metabolic disorders were found in 24 cases: 15 with PKU, 4 with Hurler's, and one each with aminoaciduria, dehydration, cretinism, retinitis pigmentosa, and Duchenne's muscular dystrophy. All but one of these 24 cases were TMR to SMR and 2 showed progressive deterioration. Seven cases of tuberous sclerosis, 2 cases of Sturge-Weber syndrome, and one case with astrocytoma were observed. No tuberous sclerosis was present in parents or siblings of the patients. The findings in the perinatal injury group suggest that predisposing prenatal factors may be operating. (8 refs.) *C. A. Rizvi.*

Children's Cottages Training Centre
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1552 SERGOVICH, F. VALENTINE, G. H., CHEN, A. T. L., KINCH, R. A. H., & SMOUT, M. S. Chromosome aberrations in 2,159 consecutive newborn babies. *New England Journal of Medicine*, 280(16):851-855, 1969.

Preliminary results of chromosome studies on cultured umbilical-cord-blood leukocytes from a consecutive series of 2,159 infants born during a year indicated that gross chromosome abnormalities were present in 0.48% (cultures were successful in 1,066 males and 1,015 females, representing 96.3% ascertainment). These included 4 infants with XYY, one with XXY and one with D/D translocation trisomy (all male), as well as 2 with regular trisomy 21, one with D/D balanced translocation and one with *cri du chat* (all female). These results suggest that D/D translocation heterozygosis will be found in random human populations with a rate of at least 1/1,000 and probably represents the most frequent type of chromosomal rearrangement. The XYY condition appears in the order of 1/250 males. This may represent the most common form of aneuploidy in human beings. (16 refs.) *Journal abstract.*

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Box 2460
London, Ontario, Canada

1553 LAURENCE, K. M., CARTER, C. O., & DAVID, P. A. Major central nervous system malformations in South Wales. II. Pregnancy factors, seasonal variation, and social class effects. *British Journal of Preventive and Social Medicine*, 22(4):212-222, 1968.

A survey between 1956 and 1962 in Glamorgan and Monmouthshire in Wales found 835 cases of central nervous system malformation in a total number of 102,786 births. Investigations into genetic and environmental factors active in the etiology of these cases were completed by direct interview of 551 cases and by questionnaire of 284 cases. Interviews were semi-structured and conducted by one person. Events during pregnancy were no different among proband mothers than mothers of normal children except in:the incidence of influenza (30 cases in proband mothers compared to 4 in controls); the duration of pregnancy for the 3 main malformations of spina bifida, anencephaly, and hydrocephalus; the preponderance of females among anencephalic births; a significant seasonal effect when anencephaly and spina bifida were considered together ($p<0.02$); and a social class gradient when all neural tube disorders were combined ($p<0.001$) (a higher incidence of CNS malformations in non-manual and in skilled manual group than in other groups). Additionally, it was noted that many of the mothers had been given little information about their malformed infants, and many of the mothers

were completely unaware of the nature of their infant's disorder. (44 refs.) - *M. D. Nutt.*

Department of Child Health
Welsh National School of Medicine
Penarth, Glamorgan, Wales
England

1554 HENDERSON, PETER. Changing pattern of disease and disability in school-children in England and Wales. *British Medical Journal*, 2(5600):259-263, 1968.

A comparison of present-day disease patterns in school children of England and Wales with those of earlier periods of recorded statistical history reveals a great reduction in infectious diseases. MR, hereditary defects, and speech and emotional disorders now comprise a greater percentage of disabilities which affect the education and development of school children. As of 1966, there were 100,000 children enrolled in special education classes or awaiting admission to special schools, and approximately 30,000 additional children who were considered unsuitable for school education because of the severity of their MR. (20 refs.) - *W. Asher.*

Department of Education
and Science
London, S. W. 1, England

1555 SMITHELLS, R. W. Incidence of congenital abnormalities in Liverpool, 1960-64. *British Journal of Preventive and Social Medicine*, 22(1):36-37, 1968.

A longitudinal survey of the total number and percentage of congenital abnormalities found in home and hospital deliveries in Liverpool since 1960 found 645 cases of central nervous system malformations, 130 cases of mongolism, 239 cases of genito-urinary defects, 617 cases of skeletal defects, and 150 cases of alimentary defects. The total population studied was 91,176 births with 2,182 defective infants (excluding cases of undescended testes, hydroceles, hernias, birthmarks, blindness, deafness, or MR) or an incidence of 239/1,000 births. (3 refs.) - *V. G. Votano.*

Alder Hey and Olive Mount
Children's Hospital
Liverpool, England

1556 LECK, IAN, RECORD, R. G., McKEOWN, THOMAS, & EDWARDS, J. H. The incidence of malformations in Birmingham, England, 1950-1959. *Teratology*, 1(3):263-280, 1968.

A survey between 1950 and 1959 in Birmingham, England found 3,637 cases of congenital malformations in a total number of 190,236 births (an incidence of 19.1/1,000). The survey was completed by examining obstetrical records, stillbirtn notifications, death certificates, and necropsy reports. Most frequent malformations found (with incidences of at least 1/1,000) were clubfoot, cardiac malformations, anencephalus, spina bifida, cleft lip and palate, Down's syndrome, hydrocephalus, and polydactyly. Combinations of malformations within one individual were found much more frequently than would be expected by chance alone. Common malformation combinations were: Down's syndrome and heart anomalies; clubfoot and spina bifida and/or anencephalus; heart anomalies and clubfoot with cleft lip and palate; and clubfoot with hydronephrosis and deformities of the upper limbs. (15 refs.) - *M. D. Nutt.*

University College Hospital
Medical School
University Street
London W. C. 1, England

1557 TORRES, FERNANDO, & BLAW, MICHAEL E. Longitudinal EEG-clinical correlations in children from birth to 4 years of age. *Pediatrics*, 41(5):945-954, 1968.

No statistically significant correlations were found between abnormal electroencephalograms (EEG) and neurological abnormalities in a group of 130 children followed from birth to 4 years of age. The Ss were given EEGs from 2 to 8 days of age, initially, and then at 4 and 8 months, 1, 2, 3, and 4 years of age. Neurological and psychological examinations and speech and hearing tests were performed over the 4-year period. Questionnaires to parents about possible abnormalities in these areas were also administered. Among the EEG abnormalities found were focal or multiple abnormal spikes, burst-suppression patterns, and voltage depression. Clinical abnormalities found in 23 Ss included abnormal speech production or reception (9 Ss), MR (7 Ss), convulsive disorders (5 Ss), motor abnormalities and Down's syndrome (2 Ss each), and porencephaly and Crouzon's disease (1 S each). Some had more than one abnormality,

and the inclusion of transient speech difficulties at age 3 increased the incidence. Abnormal spikes were found in 29 Ss with 15 having multiple foci. Of these, 8 had clinical abnormalities. Multiple foci were found in 6 newborns and single foci were found in 2. Burst suppression was found in 10 newborns and 4 of these had clinical abnormalities. One clinically normal child showed voltage depression. (17 refs.) *E. Gaer.*

Division of Neurology and
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Minneapolis, Minnesota 55455

MEDICAL ASPECTS--ETIOLOGICAL GROUPINGS

Infections, intoxication, and hemolytic disorders

1558 STERN, H., BOOTH, J. C., ELEK, S. D., & FLECK, D. G. Microbial causes of mental retardation: The role of prenatal infections with cytomegalovirus, rubella virus, and toxoplasma. *Lancet*, 2(7618):443-448, 1969.

Mentally retarded children, all under 6 years of age and living at home with their parents, were studied for evidence of congenital infection with cytomegalovirus, rubella virus, and toxoplasma. They were compared with normal children of the same ages. A significant association was found between cytomegalovirus infection and microcephalic mental deficiency. This virus may account for about 10% of such cases. Rubella and toxoplasmosis together probably were responsible for about 2-3% of all the cases of mental deficiency. (62 refs.) - *Journal summary.*

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1559 AHO, K., CANTELL, K., HJELT, L., & RANTASALO, I. Possible association between maternal virus infections and stillbirths. *British Journal of Preventive and Social Medicine*, 22(1):38-40, 1968.

At least 4.5% of stillbirths in a series of 183 stillborn infants were related to maternal virus infection. None of the fetuses weighed less than 600 g. Stillborn infants were subjected to autopsy and biopsies of the lungs, thyroid gland, thymus, heart, liver, and kidneys were made. Mothers of macerated fetuses who were dead of unknown causes had significantly ($p<0.005$) more sera with high antibody titers against the tested viruses. (4 refs.) - *V. G. Votano.*

State Serum Institute
Helsinki, Finland

1560 LANG, DAVID J., & NOREN, BIRGITTA. Cytomegaloviremia following congenital infection. *Journal of Pediatrics*, 73(6):812-819, 1968.

Three infants with clinical symptoms of congenital cytomegalovirus infection maintained a postnatal viremia; virus shedding for up to 5 months of age was found in one S. Blood specimens from the 3 Ss contained infective virus in the presence of intact leukocytes and circulating antibody. The leukocyte rich plasma, pharyngeal swabs, and urine specimens were used to inoculate culture media. Virus was not recovered from cell-free plasma, disrupted leukocytes, or ground whole clotted blood. Latent cytomegalovirus is probably maintained intracellularly or in circulating leukocytes. (30 refs.) - *V. G. Votano.*

Department of Pediatrics
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Boston, Massachusetts 02114

1561 FELDMAN, ROGER A. Cytomegaloviruses in stored urine specimens: A quantitative study. *Journal of Pediatrics*, 73(4):611-614, 1968.

Cytomegalovirus (CMV) infectivity titers in urine samples stored at -60°, -20°, and 4° C indicated that urine specimens stored for 6 days to 32 weeks at 4° C may be valuable in the virologic study of children with CMV infection. Virus positive urine samples were obtained from 14 healthy children and from mothers of 2 children with clinical neonatal CMV infection. Urine specimens were also studied from: 13 children with clinical illness or history of CMV infection; 5 children with splenomegaly and petechiae in the first 24 hours of life; 2 children with obstructive jaundice during the first 6 weeks of life; 3 children with infantile spasms; one child

with microcephaly, intracranial calcifications, hepatosplenomegaly, and retardation; one child with a history compatible with antenatal CMV infection, first studied at 2 years of age; and one child observed in a prospective study of CMV infection during pregnancy. The half-life of 6 urine specimens studied during storage at 4° C for 27 to 94 days averaged 5 to 10 days. Infectivity titers of virus obtained from 14 healthy children and 2 mothers of clinical Ss was $10^{0.03}$ to $10^{3.5}$ at a tissue culture inoculum dilution (TCID) $_{50}$/0.1 ml urine with most between $10^{1.7}$ and $10^{2.7}$. The titers of virus in specimens obtained from the 13 children with clinical history of CMV infection was $10^{1.3}$ to greater than $10^{5.5}$ $TCID_{50}$/0.1 ml urine. Titers of urine samples diluted in tissue culture maintenance fluid with and without sorbitol stored at -20°C lost infectivity more quickly than at 4°C or -60°C and urine without sorbitol lost infectivity in 2 weeks of storage. (9 refs.) - *F. J. McNulty.*

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Public Health Service
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1562 FELDMAN, HARRY A. Toxoplasmosis. *New England Journal of Medicine,* 279(25): 1370-1375, 1968.

Medical progress in the identification, transmission, and treatment of toxoplasmosis revealed only one species and serotype. A nonspecific antibody and an activator system within the host provide a mechanism for most mammals to destroy the trophozoite form of the parasite. Because the mouse has neither of these properties, it is universally susceptible to the disease and, therefore, ideal for study. Antibody titers determined with the dye test are sensitive detectors of exposure to the organism. Transmission can occur by many routes; usual transmission routes are ingestion of partially raw meat, transplacental from mother to fetus, accidental inoculation, or ingestion within a laboratory. The disease course may vary from diffuse dissemination with death to slow recovery. (53 refs.) - *W. Asher.*

State University of New York
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750 East Adams Street
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1563 FELDMAN, HARRY A. Toxoplasmosis (Concluded). *New England Journal of Medicine,* 279(26):1431-1437, 1968.

The epidemiology of toxoplasmosis indicates that although infection occurs throughout the world, the highest prevalence is in those areas where undercooked or raw meat is eaten. Humans, animals, and birds share the same symptomatology and severe sequelae often follow in those infants with congenital (transplacental) toxoplasmosis. Neonatal symptoms may resemble erythroblastosis fetalis. Acquired toxoplasmosis may present with a variety of symptoms including myocarditis, lymphadenopathy, and encephalitis. Treatment with sulfadiazine and pyrimethamine which act synergistically will destroy the trophozoite form of the parasite. Because pyrimethamine is an antimetabolite, careful monitoring of the white cell and platelet count is recommended. (56 refs.) - *W. Asher.*

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1564 Neonatal hepatitis: A new syndrome? *Lancet,* 1(7603):1011, 1969. (Editorial)

Neonatal giant-cell hepatitis appears to be a syndrome with many causes and, consequently, differing prognoses. Pathological changes may represent a response to a noxious agent, and the viruses of serum hepatitis, cytomegalovirus, rubella, and *Herpes simplex* have all been implicated. There is strong evidence of genetic transmission in some families. A greater effort should be made to determine the etiology in each individual case. (8 refs.) - *E. L. Rowan.*

1565 GILES, JOAN P., McCOLLUM, ROBERT W., BERNDTSON, L. W., JR., & KRUGMAN, SAUL. Viral hepatitis: Relation of Australia/SH antigen to the Willowbrook MS-2 strain. *New England Journal of Medicine,* 281(3):119-122, 1969.

Serial serum specimens (before infection through 200 days after infection) in 31 MS-1 (short incubation) and 19 MS-2 (long incubation) cases of viral hepatitis were examined for the presence of Australia/SH antigen. An agar-gel double-diffusion technique was used. The antigen was not detected in any serum from the MS-1 series, but it appeared regularly after MS-2 infection, usually well in

advance of evidence of hepatitis. In approximately 1/2 the MS-2 infections the antigen was present only transiently (up to 68 days), but in the remainder, it persisted throughout the period of intensive observation and for at least 3 years subsequently. (9 refs.) - *Journal abstract.*

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1566 FORBES, JOHN A. Rubella: Historical aspects. *American Journal of Diseases of Children,* 118(1):5-11, 1969.

Rubella was recognized as a separate entity as early as 1881 and its clinical features were defined in the late 1930s. The association of rubella in pregnancy with congenital malformation was established in the 1940s and its viral nature was also confirmed. Published incidence of fetal abnormality from maternal rubella varies from 18.8 to 59%, due to overdiagnosis and termination rates. Immunity can be readily assessed by the hemagglutination-inhibiting antibody test, and the present problem is to develop an antigenically potent strain of rubella virus of low transmissability which can be used to induce a permanent immunity with a minimum risk of spread to pregnant women. (54 refs.) *M. G. Conant.*

Fairfield Hospital for
Communicable Diseases
Melbourne, Victoria 3078
Australia

1567 HEGGIE, ALFRED D., & ROBBINS, FREDERICK C. Natural rubella acquired after birth: Clinical features and complications. *American Journal of Diseases of Children,* 118(1):12-17, 1969.

The pathogenesis of acquired rubella and its sequelae needs further elucidation. Viral replication in affected tissue can explain clinical symptoms of the disease including coryza, conjunctivitis, lymphadenopathy, arthritis, and fever; however, the typical rubella rash has not been shown to be related to the presence or replication of virus in the skin. This rash, as well as the encephalitis and thrombocytopenic purpura sometimes seen as complications of rubella, may be caused by tissue injury which results from an interaction of a viral antigen-antibody complex. In young women with rubella, arthralgia and/or arthritis occur quite frequently, due either to an immune reaction or to viral invasion of the joint space. Rubella presents a difficult diagnostic problem and reliable diagnosis depends on the use of laboratory methods. (27 refs.) - *M. G. Conant.*

Department of Preventive Medicine
University Hospitals
Cleveland, Ohio 44106

1568 COOPER, LOUIS Z., ZIRING, PHILIP R., OCKERSE, ALBERT B., FEDUN, BARBARA A., KIELY, BRIEN, & KRUGMEN, SAUL. Rubella: Clinical manifestations and management. *American Journal of Diseases of Children,* 118(1): 18-29, 1969.

An evaluation of 376 children with congenital rubella contracted during the 1964 epidemic demonstrated the wide variety of abnormalities associated with this disorder. The frequency of major defects found were: deafness, 252 children; heart disease, 182; bilateral cataract, 58; unilateral cataract, 50; psychomotor retardation, 174; and neonatal thrombocytopenic purpura, 85. In addition, abnormal dermatoglyphic patterns and growth retardation were observed in association with the rubella syndrome. The morbidity, death rate, and degree of handicap associated with congenital rubella can be reduced or overcome with the use of multidisciplinary, longitudinal, coordinated medical and educational services. (28 refs.) - *M. G. Conant.*

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Medicine
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1569 DESMOND, MURDINA M., MONTGOMERY, JOHN R., MELNICK, J. L., COCHRAN, GLORIA G., & VERNIAUD, WILLIE. Congenital rubella encephalitis: Effects on growth and early development. *American Journal of Diseases of Children,* 118(1):30-31, 1969.

Neurologic abnormalities were seen in 81 of 100 patients with congenital rubella, with tone disturbances, irritability, and dysphagia as prominent symptoms during the early months and motor deficits, hyperactivity, convulsions, stereotypies, and poor development as prominent symptoms at 18 months. Motor development was poor, and from 40 weeks to 3 years, language was the lowest parameter on the Gesell test, even in children for whom no hearing loss was demonstrated. Some motor defects have lessened or improved with age

and training. Language disorders are the most prominent handicaps and correlate with the amount of hearing loss suffered in infancy. (No refs.) - *M. G. Conant.*

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College of Medicine
Houston, Texas 77025

1570 MENSER, MARGARET, DORMAN, DAVID C., KENRICK, KENNETH G., PURVIS-SMITH, STUART G., SLINN, ROBYN F., DODS, LORIMER, & *HARLEY, JOHN D. Congenital rubella: Long-term follow-up study. *American Journal of Diseases of Children,* 118(1):32-34, 1969.

Of 50 patients (22 male and 28 female) with congenital rubella followed for 25 years, 48 exhibited deafness, 28 had cataracts or chorioretinopathy, 20 had minor skeletal defects, 14 had cardiovascular abnormalities, and 5 were MR. Most had achieved good socio-economic adjustment. Of the 11 married patients, 7 had produced a total of 8 children, of whom 7 were normal and 1 had congenital rubella. Compared with normal controls, the blood of the Ss showed a significant elevation of total immunoglobulin levels and IgG in the males and of IgA in the females. In addition, the Ss showed a significantly increased incidence of digital whorl patterns and other dermatoglyphic abnormalities. (9 refs.) - *M. G. Conant.*

*Children's Medical Research Foundation
Camperdown, New South Wales
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1571 DUDGEON, J. ALASTAIR. Congenital rubella: Pathogenesis and immunology. *American Journal of Diseases of Children,* 118 (1):35-44, 1969.

The study of rubella is helpful in understanding the effect of virus on the fetus and the mechanism by which malformations are produced. The pathogenesis involves maternal viremia, passage of virus to the placenta, and spreading of virus *via* the fetal bloodstream, ultimately producing either localized or disseminated fetal infection. Estimates of the incidence of congenital malformations following first trimester rubella vary from 10 to 50%; this may be due to differences in methods of assessment, or in virulence of virus strains. Fetal abnormalities are also seen following infection in the second trimester and have led to fetal death, stillbirth, or death in infancy. The incidence of fetal infection, however, is considerably higher than the incidence of congenital malformation which indicates that the fetus is capable of repair. The fetus responds to infection with production of antibody and high levels of IgM may persist for as long as 10 years. The persistence of virus in congenital rubella distinguishes it from the acute infection acquired postnatally, and this persistence may be due to a specific defect in cellular immunity or lack of cellular immune responsiveness. (63 refs.) - *M. G. Conant.*

Hospital for Sick Children
Great Ormond Street
London, W.C. 1, England

1572 BOUE, ANDRE, & BOUE, JOELLE G. Effects of rubella virus infection on the division of human cells. *American Journal of Diseases of Children,* 118(1):45-48, 1969.

Human cells derived from different normal embryonic organs were found to react differently to rubella virus infection. Cell division was inhibited in cells from lung, kidney, and hypophysis, while the cells were unchanged morphologically; however, cells from pharyngeal mucosa, skin, and muscle could be subcultured and maintained for months in a state of constant infection, during which time an increased number of chromosome breaks were found. The differential effects of the rubella virus are correlated with the selective teratogenic action of the virus in man. Because an increase in the number of chromosome breaks influences the growth of the entire cell population and leads to an increased proportion of non-viable cells, a general growth retardation is frequently observed in the rubella syndrome. (18 refs.) - *M. G. Conant.*

Societe a Etudes et de soins pour les Enfants Poliomyelitiques
Chateau de Longchamp
Paris 16, France

1573 DRISCOLL, SHIRLEY G. Histopathology of gestational rubella. *American Journal of Diseases of Children,* 118(1):49-53, 1969.

The pathogenesis of antenatal rubella infection was studied histopathologically in tissues from terminations of 77 pregnancies complicated by maternal infection during the first 12 weeks of gestation (12% in first 2 wks, 60% in wks 3-8, and 28% in wks 9-12). Specimens from the placenta, decidua, and embryo or fetus were examined microscopically. Lesions were observed in the endometrium, placenta, embryo and fetus when rubella had

occurred during the first trimester. Obliterative angiopathy in early chorionic and embryonic tissue and progressive villous infection occurred consistently; this could explain the malformations and growth retardation found in the rubella syndrome. Direct evidence of damage to specialized organs of the fetus was slight, and in 2 infants born at or near term after an acute rubella infection, no virus was detected, due perhaps to a functional change in the placental barrier. (13 refs.) - *M. G. Conant.*

Boston Hospital for Women
(Lying-in Division)
221 Longwood Avenue
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1574 SINGER, DON B., SOUTH, MARY ANN, MONTGOMERY, JOHN R., & RAWLS, WILLIAM E. Congenital rubella syndrome: Lymphoid tissue and immunologic status. *American Journal of Diseases of Children,* 118(1):54-61, 1969.

Lymphoid tissue and immunology were studied in 20 patients (CA 4 days to 6.5 yrs) who had congenital rubella. Of 11 patients younger than 2 months, 8 had well developed germinal centers and plasma cells; this correlated with elevated serum levels of IgM. Five Ss (CA 12 days to 43 mos) had no serum IgA; however, plasma cells were present in all and germinal centers were present in 4 of them. Low serum levels of IgG were found in 3 patients (one had no germinal centers and one had abnormally large germinal centers). Of the 12 patients on whom measurements were made, 11 had hemagglutination inhibition of neutralizing antibody titers greater than 1:40. In 3 of these patients, stimulation of cultured lymphocytes with phytohemagglutinin gave normal responses. One patient whose immunologic functions became normal after 11 months of age supports the theory that the rubella virus survives as long as the infected cell survives. (19 refs.) *M. G. Conant.*

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1575 Rubella as a disease. *American Journal of Diseases of Children,* 118(1): 62-67, 1969. (Discussion)

The reported frequency of arthritis as a complication in rubella varied in different studies; however, of 14 women with rubella arthritis 10-12 years ago, none have developed chronic rheumatoid arthritis. Intradermal inoculation of 14 male adults with rubella virus produced subclinical or clinical rubella in all 7 susceptible Ss, but no reactions at the site of injection appeared in any S. A mother with presumed congenital rubella gave birth to a child with congenital rubella, possibly as a result of prenatal reinfection of the mother. The antibody levels of children with congenital rubella reach low, but detectable levels after the first few months of life; however, if these antibodies are detected, it is probable that some damage has occurred. No antibody was demonstrable in newborn infants whose mothers had had rubella during the last 2 trimesters of pregnancy. Fetal growth retardation in congenital rubella may be due to direct retardation or inhibition of cell multiplication or to fetal malnutrition due to vascular lesions in the placenta. Evidence is presented which indicates that biliary atresia is not due to a failure of embryonic development, but is acquired in the neonatal period. (2 refs.) *M. G. Conant.*

1576 PARKMAN, PAUL D., HOPPS, HOPE E., & MEYER, HARRY M., JR. Rubella virus: Isolation, characterization, and laboratory diagnosis. *American Journal of Diseases of Children,* 118(1):68-77, 1969.

The etiologic agent of rubella is a ribonucleic acid-containing virus 40-80 mμ in diameter which is sensitive to ether, chloroform, and acid or alkaline pH. Serologically, it is distinct from other known viruses and can induce interference phenomena, cytopathic effects, and complement fixation. Hemagglutinating antigens are also produced in many types of infected cultures; however, they are produced in detectable quantities only when large amounts of virus are present. Infections in man and animals are accompanied by considerable virus shedding and the development of antibodies which can be measured by neutralization, fluorescence, complement fixation, and hemagglutination inhibition (HI). The HI test is sensitive and technically simple; this test is the most widely used for the determination of immune status in exposed pregnant women. (43 refs.) *M. G. Conant.*

Laboratory of Viral Immunology
Division of Biologics Standards
National Institutes of Health
Bethesda, Maryland 20014

1577 McCARTHY, KEVIN. Cell cultures useful for the study of rubella. *American Journal of Diseases of Children*, 118(1):78-82, 1969.

The evolution of microfoci in mycoplasma-free rabbit kidney ($GLRK_{13}$) cell monolayers was studied by time-lapse cine photography at one frame/minute. The growth of the microfoci was brought about by the piling up of dead cells and not by living cell proliferation. For this process to occur, an even polygonal monolayer of sufficient density of cells/unit area is required. Identical lesions were produced by using virus derived from human lung tissue culture. Human embryo lens cells (presumbly of a single cell type) from a 7-week fetus infected with high or low passage rubella virus showed cytopathic effects within 48 hours, which became more extensive, and left a loose cellular network, after 8 days. Observation of human embryo cells infected with rubella virus by phase contrast time lapse cine photomicrography may reveal previously undetected cytopathic effects. (15 refs.) - *M. G. Conant.*

Department of Bacteriology
University of Liverpool
Liverpool 3, England

1578 PERLINO, CARL A., & *ISACSON, PETER. Direct hemadsorption by cell cultures infected with rubella virus. *American Journal of Diseases of Children*, 118(1):83-88, 1969.

Hemadsorption of BHK-21 (baby hamster kidney) cell cultures infected with BHK-adapted Putnam strain of rubella virus is specifically inhibited by addition of kaolin treated human convalescent serum prior to the addition of erythrocytes and by incubation of rubella virus with specific immune serum prior to inoculation. Hemadsorption is maximal at 4°C. and slightly acid pH and is not inhibited by preinfection serum. Infected primary African green monkey kidney, primary rabbit kidney, and continuous rabbit cornea cell cultures did not show hemadsorption. Sheep, one-day-old chick, and adult fowl erythrocytes were the most effectively adsorbed species, while erythrocytes from human type O, African green monkey, and guinea pig were also adsorbed, but to a lesser extent. Hemadsorption was also observed with rubella vaccine strains from monkey kidney, duck embryo, and canine kidney stocks and hemadsorption of a significantly lower efficiency was induced by rubella virus strain Cendehill. (8 refs.) *M. G. Conant.*

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1579 SCHMIDT, NATHALIE J., & *LENNETTE, EDWIN H. Antigens of rubella virus. *American Journal of Diseases of Children*, 118(1):89-93, 1969.

Rubella virus propagated in baby hamster kidney cells was harvested after 3 days' incubation, and the fluid phase was concentrated and subjected to gel phase filtration. The fluid concentrates contained a large-particle antigen associated with the infectivity and hemagglutinin activity, and a small-particle or soluble antigen. Absorption of fractions containing these antigens on erythrocytes of one-day-old chicks indicated that a variable proportion of the large-particle antigens consists of particles similar in size and density to the infectious virus; however, these particles lacked infectivity and hemagglutinin sites. Immunological studies using rabbit antisera showed that the large and the small particle antigens have identical or very similar protein compositions. In addition, both antigens gave immunologically identical reactions with convalescent-phase sera from human infections and with immune rabbit serum. (8 refs.) - *M. G. Conant.*

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1580 MAGNUSSON, PERNILLA. Purification and characterization of rubella virus hemagglutinins. *American Journal of Diseases of Children*, 118(1):94-100, 1969.

Infectious tissue culture fluids from continuous live African green monkey kidney cells infected with rubella virus were pretreated with potassium citrate solution and separated by zonal centrifugation in sucrose density gradients by a method which used a 2-phase system consisting of polyethylene glycol and dextran. Adsorption-elution of the separated virus particles on magnesium pyrophosphate gel concentrated the hemagglutinin activity which was completely recovered. Electron microscopic examination of this material revealed complete virus particles 50-60 mμ in diameter mixed with empty particles of the same size, both carrying fine projections. Disintegration of the virus particles with polysorbate 80 and ether increased the hemagglutinin activity and produced a slowly sedimenting hemagglutinin portion, while degradation with the nonionic detergent P40 and with

strong alkali produced distinct peaks of more slowly sedimenting hemagglutinin. (9 refs.) *M. G. Conant.*

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31 Stockholm 1, Sweden

1581 ALMEIDA, JUNE D., & LAURENCE, GWENNETH D. Heated and unheated antiserum on rubella virus: Morphological effect. *American Journal of Diseases of Children,* 118(1): 101-106, 1969.

Rubella virus isolated in RK_{13} cell cultures from an adult human was treated with heated and unheated sera from a naturally occurring human case of rubella 7 weeks after the symptoms, an adult who had had childhood rubella, and rabbit tissue cultures. All 3 sera produced similar morphological changes in the virus. Electron microscopic examination of the virus treated with heat-inactivated serum showed round, white amorphous structures with closely applied, unpenetrated outer membranes with very little substructure. Virus treated with nonheated serum had partially or completely degraded surface components and displayed the type of lesion associated with immune lysis (holes approximately 100 Å in diameter with a distinct rim). It was found incidently that it is impossible to obtain fresh guinea pig serum which does not react with rubella virus. (16 refs.) - *M. G. Conant.*

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1582 WITTE, JOHN J., KARCHMER, ADOLF W., CASE, GEORGE, HERRMANN, KENNETH L., ABRUTYN, ELIAS, KASSANOFF, IRA, & NEILL, JOHN S. Epidemiology of rubella. *American Journal of Diseases of Children,* 118(1):107-111, 1969.

A review of rubella surveillance data over the past 40 years suggests a 6-9 year periodicity with the number of cases increasing in early winter and reaching a peak in spring. The greatest number of cases were in the 5 to 9 and 10 to 14 year age groups, although a significant number of cases were reported among preschool children and young adults. Since those 5 to 14 years of age are primarily responsible for the spread of the disease they should be the first to be vaccinated. Detectable antibody levels were found in 81% of those 20 to 29 years of age and in 88% to 93% of older people. (12 refs.) *M. G. Conant.*

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1583 COCKBURN, W. CHARLES. World aspects of the epidemiology of rubella. *American Journal of Diseases of Children,* 118(1):112-122, 1969.

Serological surveys using a neutralization test or a hemagglutinin inhibition test were carried out in 44 different groups and show that in most countries where studies were made, only 20% of the women of child-bearing age lacked detectable levels of rubella antibody. In Jamaica, Hawaii, Japan, and Thailand, the proportion varied from 33% to 66%. These differences do not seem to be related to ethnic susceptibility, rural-urban differences, or the presence or absence of population movements. In addition, 13 prospective studies on the risk to the fetus from rubella in pregnancy show that the defect rate was 4.1% in the 663 live-births from mothers with rubella in the second and third trimesters of pregnancy and 28% in the 422 live-births from mothers with rubella in the first trimester. The individual reports varied considerably, however, in data on abortions, still-births, prematurity, length of observation of the child, and clinical diagnosis of rubella. (63 refs.) - *M. G. Conant.*

World Health Organization
Geneva, Switzerland

1584 SEVER, JOHN L., HARDY, JANET B., NELSON, KARIN B., & GILKESON, MARY RUTH. Rubella in the collaborative perinatal research study. II. Clinical and laboratory findings in children through 3 years of age. *American Journal of Diseases of Children,* 118(1):123-132, 1969.

A total of 6,161 pregnant women were studied at 11 institutions during the rubella epidemic of 1964 by collection of clinical and laboratory data for each pregnancy and by surveillance of the children for up to 3 years of age. Clinical rubella occurred in 128 pregnancies. Following first trimester rubella, 16.7% (7 of 42) of the children had rubella-associated defects, compared with 10.3% (6 of 58) following rubella in the second trimester. Paired serum specimens obtained from 500 pregnant women before and after the 1964 epidemic showed that 85.4% had

prior immunity, based on hemagglutination inhibition, and in this group, 2.4% had clinical rubella and 1.2% had inapparent infection during the 1966 epidemic. The incidence of clinical rubella decreased following administration of γ-globulin after exposure and only one child with possible congenital rubella was born to 124 pregnant women who had been treated with γ-globulin. High risk populations were found in Los Angeles, Hawaii, and Puerto Rico. (11 refs.) - *M. G. Conant.*

National Institute of Neurological
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National Institutes of Health
Bethesda, Maryland

1585 HORSTMANN, DOROTHY M., PAJOT, THERESE G., & LIEBHABER, HARVEY. Epidemiology of rubella: Subclinical infection and occurrence of reinfection. *American Journal of Diseases of Children,* 118(1):133-136, 1969.

The problem of reinfection with rubella virus was studied experimentally in chimpanzees which were given wild virus and in antibody-positive children exposed during a natural epidemic of rubella in a closed population. Two previously exposed and 3 unexposed chimpanzees were successfully infected with a wild strain of rubella virus and, 10 months later, challenged, 2 with a homologous strain and 3 with a heterologous strain. Peak antibody levels appeared at one month and declined over the next 3 to 10 months, whether measured by neutralization, complement-fixation, or hemagglutination inhibition tests. The challenge virus may multiply at such low levels that it is undetectable or the virus may be bound to the antibody. Preliminary results obtained in a prospective study of a rubella outbreak in an institution for retarded children indicate that reinfections of antibody-positive children did occur and that the antibody of some of the children was only of the IgG type. (8 refs.) - *M. G. Conant.*

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1586 SVEDMYR, ARNE. Acquisition and decline of rubella immunity: Problem of reinfections. *American Journal of Diseases of Children,* 118(1):137-138, 1969.

Although there is no valid proof that reinfections with rubella virus occur in persons previously infected with the wild virus, further investigations are needed. Evidence of the high incidence of subclinical infections and of antibody booster reactions following vaccination or natural exposure are difficult to evaluate; however, reinfection has occurred in persons previously vaccinated with attenuated virus. It is still not known whether, in a pregnant woman, such a subclinical reinfection could be harmful to the fetus. (12 refs.) - *M. G. Conant.*

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1587 ENDERS-RUCKLE, GISELA. Seroepidemiology of rubella and reinfection. *American Journal of Diseases of Children,* 118(1):139-142, 1969.

Comparison of the age distribution of rubella hemagglutination-inhibiting antibodies with that of complement-fixation antibodies indicated that the percentage of persons with detectable complement-fixation antibodies is lower than that with hemagglutination-inhibiting antibodies. This is especially true above the age of 33 years which implies that, at this age, primary infection is rare and that clinical immunity to rubella persists. Experiments with the Cendehill vaccine showed that naturally acquired hemagglutination-inhibiting antibody titer of 1:2 and 1:4 may be sufficient to prevent reinfection with this strain; however, there are difficulties encountered in obtaining unequivocal results with both neutralization tests and the hemagglutination-inhibiting tests, especially with kaolin-absorbed serum. Booster responses in persons naturally rubella-immune may occur following exposure, but it is likely that if reinfection occurs at all, it is limited to lymphoid tissue at the place of entry and does not carry a risk to the fetus. (7 refs.) - *M. G. Conant.*

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1588 GALE, JAMES L., DETELS, ROGER, KIM, KENNETH S. W., BEASLEY, R. PALMER, & *GRAYSTON, J. THOMAS. Epidemiology of rubella on Taiwan. *American Journal of Diseases of Children,* 118(1):143-145, 1969.

The epidemiology of rubella on Taiwan, where it is not an endemic disease, demonstrated that epidemics occurred in 1957-58 and in 1968, and 80%-90% of the school-age children and

slightly less of the preschool children born since the preceding epidemic were infected with rubella. Both epidemics progressed from north to south; however, the 1968 epidemic reached a peak in April in the north, while the 1957-58 epidemic peaked in November. Thus, the 1968 epidemic did not spread to the south and more remote areas with the beginning of summer. Apparently, a large susceptible school-age population is the most important factor for a rubella epidemic on Taiwan. (No refs.) - *M. G. Conant.*

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1589 Virology and epidemiology of rubella. *American Journal of Diseases of Children,* 118(1):146-154, 1969. (Discussion)

Gel precipitating antigens (which appear 2 wks after the onset of rash and peak at 4 mos) were isolated from rubella virus using gel diffusion techniques. Rubella virus strains passaged in monkey or rabbit kidney cells produced a rapidly detectable and distinct cytopathic effect in microcultures of rabbit kidney cells. Rubella virus attacked the genital system, kidney, and peripheral blood of infected adult quail and produced cataracts, necrosis of paws, tail and nose, and necrosis of liver and spleen in baby rabbits after infection of the mother 8 days after mating. Significant antigenic variation between any of 8 strains of rubella virus tested has not been demonstrated. Seroepidemiological characteristics of rubella infection in rural and urban populations and the antibody levels were around 90% for the adult population. Low levels of immunity have been found in Togo and Ireland. The rubella virus should not be classed as an arbovirus because there is insufficient information available for making a reliable taxonomic judgment and because the term arbovirus is not a precise taxonomic group. (No refs.) - *M. G. Conant.*

1590 CASTROW, FRED F. II, & DE BEUKELAER, MARTIN. Congenital rubella syndrome. *Archives of Dermatology,* 98(3):260-262, 1968.

A 9-month-old child with a reticulated erythmatous eruption of the face and acral areas, seborrhea of the face, and other well-known symptoms of congenital rubella infection eventually had the diagnosis established by culture of the rubella virus. These new skin symptoms should be included in differential diagnosis as well as other manifestations of this multisystem disease such as cataracts, cardiac defects, deafness, low birth-weight, decreased somatic growth after birth, thrombocytopenic purpura, hepatosplenomegaly, interstitial pneumonitis, abnormal roentgenographic appearance of long bones, central nervous system damage (motor and mental retardation), dysgammaglobulinemia, or unusual dermatoglyphics. Often the diagnosis will be missed if the mother is unaware of having had rubella infection during pregnancy. (7 refs.) *L. E. Bayliss.*

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1591 STRAUSS, LOTTE, & BERNSTEIN JAY. Neonatal hepatitis in congenital rubella: A histopathological study. *Archives of Pathology,* 86(3):317-327, 1968.

The 1964 rubella epidemic added new knowledge about the clinical symptoms of congenital rubella infection. Autopsies performed on 5 infants and liver biopsy on one infant disclosed hepatic disease, especially hepatomegaly and conjugated hyperbilirubinemia. Hepatocellular alteration in the form of cholestasis, giant-cell hepatitis and necrosis were also found, and rubella virus was eventually isolated in 5 cases. These findings established rubella virus as a cause of neonatal hepatitis and possibly of biliary atresia; therefore, Ss with biliary atresia should be included in research on viral agents in the etiology of neonatal obstructive jaundice. (21 refs.) - *L. E. Bayliss.*

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1592 PURVIS-SMITH, STUART G., HOWARD, PETER R., & MENSER, MARGARET A. Dermatoglyphic defects and rubella teratogenesis. *Journal of the American Medical Association,* 209(12):1865-1868, 1969.

Abnormal dermatoglyphic patterns may occur when rubella is contracted during the first trimester of pregnancy and may also occur in normal genetic variation or from prenatally administered drugs. Radial loop and digital whorl patterns on fingertips and simian and Sydney lines appeared in children with congenital rubella in Minnesota and New York. Fifty adults who had had congenital rubella

showed fewer dermatoglyphic anomalies than the children in this study, indicating a milder attack or weaker virus. In testing 100 children in New South Wales, congenital rubella was considered if the patients had cataract formation, central nervous system defects, deafness, cardiovascular system abnormalities, positive virological findings, significant serological results, or if rubella chorioretinopathy was present. Two methods were used for dermatoglyphic print patterns, and fingerprints were classified into ulnar and radial loops, whorls and arches. Palmar variations recorded were loops or whorls and flexion creases; the position of the axial triradius was measured from the wrist crease and expressed as a percentage of the measurement from the third digit base to the wrist crease. Fifty percent of the patients had either abnormal palmar creases, or abnormal whorl patterns on 8 or more fingers. Although some of the dermatoglyphic anomalies described in the rubella syndrome may be caused by other viruses, the fact that 50% of the patients had congenital rubella could be used as an indicator of rubella embryopathy. (8 refs.) *L. E. Bayliss.*

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1593 WASSERMANN, M. P., VARGHESE, P. J., & ROWE, R. D. The evolution of pulmonary arterial stenosis associated with congenital rubella. *American Heart Journal*, 76(5):638-644, 1968.

Infants (CA 1 to 18 mos) with pulmonary arterial stenosis (PAS) secondary to congenital rubella had variable systolic pressure differences between the main pulmonary artery and the left and right main branches at all stages of the disorder and exhibited striking differences in their pulmonary arteriograms. Twenty Ss were divided into: group 1, under one year of age having patent ductus arteriosus with PAS (2 Ss) and without PAS (3 Ss); group 2, under 6 months of age with PAS (4 Ss); group 3, over 6 months of age with PAS (7 Ss); and group 4, serial studies (under 6 mos and over 6 mos) of 4 Ss with PAS. Angiographic observations were made in the antero-posterior projection and the intersect angle of the main and right branch of the pulmonary artery was determined. In group 1, the Ss with PAS had systolic pressure differences of 24 and 34 mm Hg, a narrowing at the origin of the pulmonary artery main divisions, and an intersect angle of <10°, while the Ss without PAS had a dilated main pulmonary artery with large main divisions and an intersect angle of 40°. Group 2 had pressure differences averaging 20 mm Hg, main pulmonary artery hypertension, moderate sized main pulmonary artery with long hypoplastic main branches, and an intersect angle of approximately 20°. In group 3, pressure differences (13 mm Hg) occurred in only 2 Ss, the main pulmonary artery was large, the right major division narrowed at the initial portion then dilated, and the intersect angle was <20° in all Ss but one (20°). In group 4 when the Ss were <6 months of age, the systolic pressure differences averaged 16 mm Hg, the arteriograms were similar to group 2, and the intersect angle was <15°; when the Ss were >6 months of age, the systolic pressure difference was 25 mm Hg, the arteriograms were similar to group 3, and the intersect angle remained <20°. (14 refs.) - *A. Huffer.*

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1594 HARDY, JANET B. Rubella and its aftermath. *Children*, 16(3):91-96, 1969.

The symptoms of congenital rubella may include low birth-weight, cataracts, congenital heart defect, enlarged liver and spleen, neurologic abnormalities, profound hearing loss, and SMR. Because of these multiple handicaps, a multidisciplinary approach is important in the treatment of a child with this syndrome. Adequate assessments should be made in the areas of audiology, psychology, pediatrics, sensory-motor functioning, and specific medical conditions. Because of the severity of congenital rubella, prevention and early detection are vital. (18 refs.) *J. M. Gardner.*

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1595 BLACK, FRANCIS L., FOX, JOHN P., ELVEBACK, LILA, & KOGON, ALFRED. Measles and readiness for reading and learning: I. Background purpose and general methodology. *American Journal of Epidemiology*, 88(3):333-336, 1968.

Studies of the effects of measles upon reading and learning are described in terms of general methodology, population data, and sampling procedures. Common methodology was used in 3 studies of first grade students in New Haven (Connecticut), Wappingers Central

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School District (New York), and the Shoreline School District (Washington). The Monroe Primary Reading Aptitude Test and the Metropolitan Readiness Test were used as measures for reading readiness, and parent questionnaires provided personal and medical data on each child. Blood samples were collected from all children and were analyzed by hemagglutination-inhibition titration for measles and mumps antibody in accordance with the method of Rosen. Each population was divided into unmodified measles, γ-globulin modified measles, measles vaccination, and measles susceptible groups. The variables of CA, number of siblings, socioeconomic status, and ethnic origin and their relationship to measles were considered. Statistical treatment was by analysis of variance and analysis of covariance. Additional analyses of the effects of mumps on reading readiness scores were conducted. (15 refs.) - *B. Bradley.*

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1596 BLACK, FRANCIS L., & DAVIS, DOROTHY E. M. Measles and readiness for reading and learning: II. New Haven study. *American Journal of Epidemiology*, 88(3):337-344, 1968.

The effects of measles upon readiness for reading and learning in 556 first-grade children in 11 New Haven (Connecticut) schools are reported. The population included a large group of non-whites, and there was an extensive range in educational and economic status. The Monroe Primary Aptitude Test was administered by a psychologist both to class groups and individually. Test scores were based on percentiles and included an internal correction for age. Analysis of data showed that 69% of these children had had measles. Characteristics of "measles" children compared with those of children who escaped measles revealed that they were slightly older, had an average of one additional sibling, were non-white, lived in poorer neighborhoods, and had parents with less education. After adjustment for variance attributable to covariants, average test scores of Ss who had unmodified measles were significantly lower ($P<.01$) than those of other population groups on 4 of 5 parts of the reading readiness test. A similar trend was found when readiness was correlated with different levels of mumps HI titer. However, mumps data were obtained from a non-random subgroup of the original population. Children who had γ-globulin or vaccine received the highest test scores, but the differences between these groups and the non-measles group were accounted for by factors which included number of older siblings, neighborhood, and mother's education. Home environmental factors were related both to reading readiness success and protection from measles. (7 refs.) - *B. Bradley.*

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1597 FOX, JOHN P., BLACK, FRANCIS L., ELVEBACK, LILA, KOGON, ALFRED, HALL, CARRIE E., TURGEON, LIVIA, & ABRUZZI, WILLIAM. Measles and readiness for reading and learning: III Wappingers Central School District Study. *American Journal of Epidemiology*, 88 (3):345-350, 1968.

The effects of measles on reading readiness and learning were analyzed for 587 first-grade children in the Wappingers Central School District (New York). This district covers rural localities and residential areas near large corporations and has 7 elementary schools, a first-grade enrollment of more than 1,000, and a high adult educational level. Children who had received γ-globulin after measles exposure, but who lacked the measles antibody, and children with discordance between measles history and serology were excluded. Performance was measured with the Metropolitan Reading Test (MRT), and statistical treatment utilized the analysisof covariance method. Covariants considered in adjusting average scores were CA, number of siblings, birth order, and father's occupation. All these factors were related to having measles and performance on the MRT. Having had measles was associated with having older siblings and with lower scores on the MRT. However, vaccinated children and children with measles modified by γ-globulin received higher scores on the MRT. Adjustment for the influence of environmental covariants did not account for all between-group score differences. Children with mumps HI antibody had higher MRT scores than mumps-negative children. The covariants apparently did not indicate the full contribution of environmental factors on test performance. (5 refs.) *B. Bradley.*

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1598 KOGON, ALFRED, HALL, CARRIE E., COONEY, MARION K., & FOX, JOHN P. Measles and readiness for reading and learning. IV. Shoreline School District Study. *American Journal of Epidemiology*, 88(3):351-358, 1968.

The effects of measles upon reading readiness and learning were analyzed for the Shoreline School District (Washington). The population consisted of 696 middle class, first-grade children who resided in a suburban community. The Metropolitan Readiness Test (MRT) was used to assess reading readiness learning, and total scores were transformed into national percentile rankings. Variables analyzed by analysis of covariance included CA (mos), number of siblings, number of older siblings, and parental education. Occurrence of measles was related to CA, number of siblings, and birth order, but not to level of parental education. There were no significant differences between measles and non-measles groups in MRT scores. A significant ($P<.025$) difference between years elapsed since measles and number readiness scores was found. This could be consistent with either a transitory or age-dependent effect. Mumps was associated with better MRT performance with only marginal significance on percentile scores, and there were no significant differences when raw scores were used. (6 refs.) - *B. Bradley.*

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1599 FOX, JOHN P., BLACK, FRANCIS L., & KOGON, ALFRED. Measles and readiness for reading and learning: V. Evaluative comparison of the studies and overall conclusions. *American Journal of Epidemiology*, 88 (3):359-367, 1968.

The effects of measles on reading readiness and learning are summarized in this overview and analysis of the results of 3 studies of varying populations. The results showed that in 2 of the 3 studies, New Haven (Connecticut) and Wappingers Falls (New York), there were significant differences in performance on readiness tests between unmodified measles groups and other groups. However, in the Seattle (Washington) analysis, there were no significant between-group differences except for suggestive evidence of a transitory or age-dependent effect. The Seattle population was more homogeneous in regard to social class, and important environmental factors were accounted for more adequately in this sampling. Therefore, the positive results of the effects of measles on reading readiness performance found in 2 of the 3 studies require additional verification with other population groups. It may be that measles virus strains in Seattle were less neurovirulent, measles produces a transitory or age-dependent effect on the CNS functions measured, the postulated adverse effect required an additional factor which was not present in Seattle, and/or measles may influence a CNS function not tested by the readiness tests. Variables related to having measles seemed to be birth order and sibship size. Higher performance on the reading readiness test appeared to be associated with small sibship size, high birth order, better class neighborhood, parental education, and occupational level of father. (19 refs.) *B. Bradley.*

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1600 DUDGEON, J. A. Advances in virology: A new look at rubella. *Proceedings of the Royal Society of Medicine*, 60(7):642-648, 1967.

Although a rash may be the most visible evidence of rubella infection, the prodromal period of infected nasopharyngeal secretions, lymphadenopathy, and viremia is most significant for transmission and fetal infection. Rubella virus is invasive of practically all fetal tissue, and the infant continues to excrete virus after birth. The highest period of risk is in the first 4 weeks of fetal life (50%), but it continues to be significant until the sixteenth week of gestation. Spontaneous abortions, still-births, major and multiple malformations, damage to a single structure, subclinical infections, and no infections may result and the differential factors are poorly understood. Pathologically, 2 types of lesions occur: inhibition of cell growth and cell necrosis. Improved laboratory techniques for viral isolation (African green monkey kidney [AGMK] and rabbit kidney [RK-13] cultures) and serological tests (neutralizing antibody, complement-fixing antibody, and immunoglobulin estimations) may lead to discoveries in the nature of the pathological process and immunological response in this group of congenital malformations with environmental causation. (54 refs.) - *E. L. Rowan.*

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1601 CHENOWETH, ALICE D. Planning for a mass attack on rubella. *Children,* 16 (3):94-95, 1969.

Three scientific conferences, held on prevention of rubella because of the imminence of a possible epidemic, recommended 2 strategies. Vaccination efforts should be concentrated on children in kindergarten and the first few years of school, since these are the major sources of infection for pregnant women. In addition, the side effects of the vaccine for children is minimal, while some troublesome effects have occurred in adults. The second approach is to vaccinate women of child-bearing age who show possible susceptibility to the disease. Here it is important to warn the vaccinees against becoming pregnant within 2 months of the injection because of possible damage to the fetus. (No refs.) - *J. M. Gardner.*

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1602 MEYER, HARRY M., PARKMAN, PAUL D., & *HOPPS, HOPE E., JR. The control of rubella. *American Academy of Pediatrics,* 44(1):5-20, 1969.

An overview of the development of attenuated rubella viruses, of the nature of vaccine-induced immunity, and the proposals for disease control is presented. The vaccines developed show high seroconversion rates and high levels of antibody titer. In vaccinated children, the subsequent disease is neither rubella-like nor transmittible to intimate contacts. In vaccinated post-pubertal women, the subsequent disease is rubella-like. In all studies, viral shedding from the pharynx occurred after vaccination (from 70% to 92% of cases); however, viremia was rare and transmittability to contacts was not noted. The presence of rubella antibodies was shown to grant immunity from clinical disease when the person was challenged by rubella virus. Because of the danger of transmission to an early pregnancy and the difficulty in identifying and reaching a significant number of susceptible women, it is recommended that routine vaccination should be aimed at the age group of one year to prepuberty (both sexes). This population is the major source of endemic virus in the community, and control here should lead to early control of the disease among child-bearing women. (68 refs.) *W. J. Klein.*

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1603 COMMITTEE ON CONTROL OF INFECTIOUS DISEASES. Rubella virus vaccine. *Pediatrics,* 44(1):21-23, 1969.

The goal of rubella control is the prevention of fetal infections, and this can be best achieved by vaccination of all children between the ages of one and puberty since this population is the major source of the virus in the community. Rubella infection is mild and usually without sequelae in children. In adults, it is commonly accompanied by polyarthritis. Immunity after infection or vaccination appears to be long-lasting. The hemagglutination-inhibition antibody test is best for testing immunity. Women after puberty should not be vaccinated because of danger of infecting an early pregnancy, nor is vaccination recommended when serious systemic illness is present. (No refs.) - *W. J. Klein.*

No address

1604 1970 epidemic "questionable": Rubella vaccine "race" nears finish. *Journal of the American Medical Association,* 207 (9):1615, 1617, 1969.

The threat of a 1970 rubella epidemic prompted reports on the development of various vaccines; these reports were presented at an international conference held at Bethesda, Maryland. The presentations were carefully made in order to obtain approval of the Division of Biologics Standards of the National Institute of Health for the vaccines. The vaccines included 3HPV-77 rubella strain vaccines (culture media duck embryo, canine kidney, or monkey kidney); the Cendehill strain (culture media rabbit kidney); a vaccine cultured in human diploid cells (Wistar Institute, Philadelphia) from which there were no arthritic or arthralgic side effects; and a vaccine administered intranasally. Efforts to determine an appropriate vaccine should be intensified because current indications are that fetal damage from rubella occurs not only in early pregnancy, but also as late as the second trimester. (No refs.) *V. R. Shaffer.*

1605 BOHIGIAN, GEORGE M., FOX, JEAN, & COTLIER, EDWARD. Immunofluorescent localization of rubella virus in the lens, retina, and heart of congenital rubella-infected rats. *American Journal of Opthalmology*, 65(2):196-201, 1968.

Female pregnant rats were injected with rubella virus during the first week of gestation, and by using an indirect immunofluorescent method, the virus was identified in the lens, retina, and heart of the infected fetuses and newborns. The abnormalities were similar to those seen in the human congenital rubella syndrome. Ocular findings included disruption of the lens bow, polymorphonuclear-type DNA material on lens nucleus, vacuolation of the lens cortex, scattered retinal eosinophilic areas, and deletion of visual cell nuclei. The heart showed disrupted cords of cardiac muscle and septa. (10 refs.) - *V. G. Votano.*

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1606 PARKMAN, PAUL D., & MEYER, HARRY M.,JR. Prospects for a rubella virus vaccine. *Progress in Medical Virology*, 11(1):80-106, 1969.

In the past few years, world-wide interest has been aroused in developing a vaccine to prevent rubella in pregnant women. Clinical study has increased the understanding of the infection, and brought about the development of effective vaccines. A reliable inactivation method (virus infectivity destroyed by chemical or physical means) may be prepared eventually, but at present is not available. The method of preparing live, attenuated vaccines (in which the rubella virus has been passed through a variety of cell cultures) is adaptable for commercial production. Laboratory marker techniques used on animals and avian cell cultures give an accurate estimation of the properties of HPV-77 and Benoit strain viruses. Successful clinical trials have been made with attenuated vaccine HPV-77 and its derivatives. While the antibody has a lower level than seen in natural rubella, minimal amounts of HPV-77 are immunogenic and although there is virus shedding, the attenuated strain has lost most of this means of respiratory infectivity. Overattenuation of rubella viruses can occur; therefore, for vaccine production, it is desirable to select those strains with less modification. The only documented health hazard of rubella is the threat to pregnant women, and wide-spread immunization with a safe vaccine, or a combination of vaccines, should control this virus. (44 refs.) *L. E. Bayliss.*

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1607 BUYNAK, EUGENE B., HILLEMAN, MAURICE R., WEIBEL, ROBERT E., & STOKES, JOSEPH. Live attenuated rubella virus vaccines prepared in duck embryo cell culture. I. Development and clinical testing. *Journal of the American Medical Association*, 204(3):195-200, 1968.

The Merck strain rubella virus vaccine and the Meyer-Parkman monkey kidney HPV-77 virus attenuated by passage in duck embryo cell culture were tested on man and animals. The vaccines were grown in 14-day-old duck embryo cells because these cells are non-mammalian and are, therefore, less likely to produce anaphylactic side effects,and spontaneous neoplasms are rare in ducks. Infectivity titrations were made in grivet monkey kidney cultures with 0.1 ml amounts of serial tenfold dilutions of virus, and the presence of rubella was detected by challenge with Bunyamwera virus. Tests for infectivity were completed with grivet and rhesus monkeys and in a small number of human contact controls. All monkeys given Merck vaccine of attenuation level A or B had serum responses; however, no viremia or virus excretion occurred. Merck level B and Meyer-Parkman vaccine strain M-33 in duck embryo cells were comparable in serum responses. Attenuation levels C, D, and E produced infrequent serum responses. The Merck viral vaccine at attenuation levels B and C and the Meyer-Parkman HPV-77 vaccine seemed to be effective, noncontagious vaccines, and antibody levels lasted for about 1 year in children. (10 refs.) - *V. G. Votano.*

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1608 KONO, REISAKU, HAYAKAWA, YASUSHI, HIBI, MITSUO, & ISHII, KEIZO. Experimental vertical transmission of rubella virus in rabbits. *Lancet*, 1(7590):343-347, 1969.

Healthy adult female Japanese white rabbits (NIBS strain) were mated and inoculated intravenously, on day 7 or 8 after mating, with infected tissue-culture fluid of various strains of rubella virus. Malformations and pathological changes similar to those observed in human cases were found in baby rabbits from does which received American strains. On the other hand, Japanese strains did not show abnormalities in the offspring. Virus was successfully reisolated from persistently infected does and babies; and an antibody response was detected in the offspring. Strain differences in teratogenicity would seem to explain the fact that the congenital-rubella syndrome has been extremely rare in Japan. This experimental system could be a useful model for the study of teratogenesis of rubella-virus infections. (18 refs.) - *Journal summary.*

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1609 BORDLEY, J. E., BROOKHOUSER, P. E., HARDY, JANET, & HARDY, W. G. Prenatal rubella. *Acta Oto-laryngologica*, 66(1-2):1-9, 1968.

Case records of 165 children with positive laboratory evidence of prenatal rubella exposure showed hearing deficit in 44.4% of cases. Eighty-two percent of the Ss had positive serology and 18% had positive viral cultures. Fifty-one percent of the mothers had subclinical rubella. Confirmation methods included antibody neutralization, complement fixation, and hemagglutination inhibition tests. Hearing loss, as evaluated by the Ewing test technique and a complete hearing evaluation, was noted in the Ss in all 3 trimesters of pregnancy. Rubella in pregnancy can damage a child while demonstrating very little evidence of maternal disease, and undetected virus in the newborn can become a community menace. Laboratory methods of rubella detection are recommended. (19 refs.) *W. Asher.*

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1610 SAUNDERS, MICHAEL, KNOWLES, MALCOLM, CHAMBERS, MAVIS E., CASPARY, ERNEST A., GARDNER-MEDWIN, DAVID, & WALKER, PETER. Cellular and humoral responses to measles in subacute sclerosing panencephalitis. *Lancet*, 1(7585):72-74, 1969.

Lymphocyte transformation in response to measles antigen was strikingly increased in an 8 1/2-year-old boy with subacute sclerosing panencephalitis (SSPE) compared with a healthy matched control. Both boys had had measles. It is suggested that this observation indicates the presence of immunocompetent lymphocytes specific to measles antigen, and that destructive interaction between such lymphocytes and host cells in the brain may lead to SSPE. (13 refs.) - *Journal summary.*

Medical Research Council
Demyelinating Diseases Research Unit
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1611 Lab men confirm measles' deadly role in rare brain disease. *Medical World News*, 10(13):42-43, 1969.

Measles virus was isolated and grown from brain tissue of a patient with subacute sclerosing panencephalitis. This confirmed the suspected etiology of this progressive type of encephalitis. Brain tissue was trypsinized in order to eliminate neutralizing antibodies and then grown in culture. Characteristic cell destruction and nuclear inclusion bodies were then observed both in the brain tissue and in HeLa cells. Hopefully, this technique may aid in clarifying the role of viruses in some central nervous system disorders. (No refs.) - *E. L. Rowan.*

1612 CHEN, TSU TEH, WATANABE, ITARU, ZEMAN, WOLFGANG, MEALEY, JOHN, JR. Subacute sclerosing panencephalitis: Propagation of measles virus from brain biopsy in tissue culture. *Science*, 163(3872):1193-1194, 1969.

Measles virus was propagated in monolayer cultures established from brain tissue of a patient with subacute sclerosing panencephalitis. Syncytial cells were rendered fluorescent with measles specific antiserums only, by means of an indirect technique. The ultrastructural appearance of the microtubular aggregates was identical in brain tissue and in the cultured cells. Fusion experiments produced a cytopathic effect in human embryonic kidney and VERO cell cultures. The virus

was identified by hemagglutination-inhibition, but only in the supernatant of disrupted cultured cells. (13 refs.) - *Journal abstract.*

Division of Neurosurgery
Indiana University Medical Center
Indianapolis, Indiana 46202

1613 BELLANTI, JOSEPH A., SANGA, ROSVIDA L., KLUTINIS, BARBARA, BRANDT, BRENDA, & ARTENSTEIN, MALCOLM S. Antibody responses in serum and nasal secretions of children immunized with inactivated and attenuated measles-virus vaccines. *New England Journal of Medicine,* 280(12):628-633, 1969.

In 24 children immunized with inactivated or attenuated measles-virus vaccines, responses of serum antibody (characterized by density-gradient ultracentrifugation and radioimmunodiffusion studies) were comparable both in peak titers and in immunoglobulin contribution. In 8 of 9 children immunized with attenuated measles-virus vaccine nasal antibody associated primarily with the γA and less often with γG immunoglobulins developed; nasal antibody was detected in only 3 of 7 immunized with inactivated measles-virus vaccine, and in these both γA and γG activities were observed. Of 8 children with pre-existing serum antibody, 6 had nasal antibody in the preimmunization specimens. The differences in ability of these vaccines to stimulate local respiratory-tract antibody may in part explain the greater clinical effectiveness of the attenuated vaccine as well as the occurrence of altered reactivity of the host who received inactivated vaccine. (24 refs.) - *Journal abstract.*

Department of Pediatrics
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1614 HILLEMAN, MAURICE R., BUYNAK, EUGENE, WEIBEL, ROBERT E., STOKES, JOSEPH JR., WHITMAN, JAMES E., & LEAGUS, M. BERNICE. Development and evaluation of the Moraten measles virus vaccine. *Journal of the American Medical Association,* 206(3):587-590, 1968.

Three measles vaccines (Edmonston B, Moraten, and Schwarz) were given to groups of children (CA 8 mos to 13 yrs) with no history of measles infection or measles vaccination; febrile reactions from Moraten vaccine were found statistically ($p<0.05$) less often than with either of the other vaccines. Measles rash was found more than twice as often among children who had received Edmonston when compared with the Moraten or Schwarz vaccinated children; Edmonston vaccine also caused a fever of 101° F in 45.9% and of 103° F or greater in 18.1% of the children. In addition, there was one case of febrile convulsion with the Edmonston vaccine. The mean antibody titer was 1.5-fold higher with the Edmonston vaccine than with the other 2 vaccines; however, all children responded serologically to all vaccines. The mean hemagglutination-inhibiting antibody titer following Edmonston vaccine administration was 1:25 compared with 1:16.3 and 1:16.1 for the Moraten and Schwarz vaccines. (19 refs.) - *M. D. Nutt.*

Merck Institute for Therapeutic Research
West Point, Pennsylvania 19486

1615 A measles vaccine withdrawn. *British Medical Journal,* 1(5647):794-795, 1969. (Editorial)

Burroughs Wellcome withdrew its live-attenuated measles vaccine (Wellcovax) from the market after its administration was associated with encephalitis in 3 young children. The Beckinham 20 strain of virus which was used in the preparation of Wellcovax had not attained the fine balance between safety and efficiency. Adequate surveillance must be maintained over all vaccination programs; almost 5 million doses of Wellcovax had been administered before its withdrawal. (2 refs.) *E. L. Rowan.*

1616 Measles vaccination. *Lancet,* 1(7596): 659, 1969. (Annotation)

A satisfactory measles vaccine has taken longer to develop because of sociological and medical factors which induced haste in the development of other vaccines were not considered present. A live-measles vaccine was desired because it produced longer immunity than a killed measles vaccine; however, few strains of live measles virus have been tested primarily due to a lack of an animal-model system. Most strains now in use were derived from the Enders-Edmonston strain. The Schwarz and Beckenham strains were used in British vaccines, but the Beckenham strain was withdrawn because of an association with 3 cases of encephalitis. In a trial test, the Schwarz vaccine produced a milder reaction while the Edmonston B vaccine had a slightly higher antibody response. Although the use of live vaccines entails some risk, value of avoiding an epidemic outweighs any risk. Prevention of rubella is less costly than is treatment of its morbidity. (No refs.) - *E. Hays.*

1617 RINVIK, ROALD. Congenital varicella encephalomyelitis in surviving newborn. *American Journal of Diseases of Children,* 117(2):231-235, 1969.

A mother who had a varicella infection in pregnancy gave birth to an infant who developed typical chickenpox skin lesions, and encephalitis within 11 days after birth. The infant was noted to have varicella scars and a poorly developed right leg and foot. Pneumoencephalography showed cortical atrophy with widening of the lateral ventricles. Abnormal spinal fluid content during the first few weeks and severe cortical atrophy at one month indicated that the disease had been active intrauterinely. (19 refs.) - *B. Bradley.*

Department of Pediatrics
Ullevall Hospital
University of Oslo, Norway

1618 AZIMI, PARVIN H., *CRAMBLETT, HENRY G., & HAYNES, RALPH E. Mumps meningoencephalitis in children. *Journal of the American Medical Association,* 207(3):509-512, 1969.

Fifty-one children with mumps meningoencephalitis were studied. The disease occurred throughout the year, with higher frequency in boys. The disease was of short duration and was generally benign. Parotitis accompanied meningoencephalitis in 47% of the patients. Appropriate serologic studies and/or recovery of virus from cerebrospinal fluid, saliva, urine, or washings of throat swabs are essential for the diagnosis of mumps meningoencephalitis in the absence of parotitis. All children recovered uneventfully and follow-up examinations of 33 children 4 to 40 months after the onset of meningoencephalitis showed no neurological sequelae or hearing loss. Serum amylase concentration was found to be elevated in the presence of parotitis and generally normal in primary mumps meningoencephalitis. (20 refs.) - *Journal abstract.*

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1619 WEBB, WARREN W., SELL, SARAH, H., PATE, JOHN E., & SOLOMON, AMIEL, H. The sequelae of acute bacterial meningitis: A possible clue to early school problems. *Journal of Special Education,* 2(4):393-396, 1968.

Acute bacterial meningitis affects about 20,000 children under the age of 14 years each year in the United States; it occurs most frequently in infants and very young children, and the highest mortality rates and most serious brain damage occur in the youngest children. The 3 bacterial species which are usually involved in the etiology are meningococcus, pneumococcus, and *Hemophilus influenzae.* Clinical features of the disease are high fever, headache, stiff neck, and vomiting. Of the 90% of children now surviving acute bacterial meningitis, 18% suffer severe sequelae. Less serious, but important, educational aspects of postmeningitive sequelae have not been adequately evaluated; however, the indication is that 25% or more of these children suffer handicaps of greater or lesser degree. Restoration to normal mental functions may be more apparent than real. Subtle deficiencies may be either direct or indirect, and the severity of sequelae probably ranges along a continuum from very mild to very severe. Interdisciplinary study is necessary to further elucidate postmeningitic neurological sequelae. (11 refs.) - *B. Parken*

Vanderbilt University Medical Center
Nashville, Tennessee 37205

1620 MENKES, JOHN H. The causes for low spinal fluid sugar in bacterial meningitis: Another look. *American Academy of Pediatrics,* 44(1):1-3, 1969.

The concept that the glucose content of cerebrospinal fluid (CSF) is low in bacterial and tuberculous meningitis because it is utilized by the bacteria and/or by phagocytizing polymorphonuclear leukocytes is no longer tenable. Low CSF glucose now appears to result from the greater utilization of glucose by the brain for increased glycolysis and conversion to lactic acid. In meningitis, both simple diffusion and carrier-facilitated diffusion of glucose from blood to CSF and brain are impaired. Although the mechanisms of brain glycolysis and defective glucose transport may account for a low CSF sugar, the physiologic correlates of these mechanisms remain enigmatic. (20 refs.) - *E. L. Rowan.*

Division of Pediatric Neurology
University of California
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Los Angeles, California 90024

1621 OH, SHIN JOONG. Paragonimus meningitis. *Journal of Neurological Sciences,* 6(3): 419-433, 1968.

The human lung fluke, *Paragonimus westermani,* is endemic in the Far East and Southeast Asia

and although benign pulmonary paragonimiasis is the usual manifestation of parasitic infection, 0.8% of these patients develop cerebral infections with severe parenchymatous defects and/or meningitis. Only 14 cases of *Paragonimus* meningitis appear in the literature; this reflects the usually benign course of disease and the confusion of the fulminating disease with other infections, especially tuberculosis. The onset is acute with fever, vomiting, headache, and signs of meningeal irritation. Poor general condition and mental confusion are associated with a poor prognosis. Spinal fluid findings are similar to those in bacterial meningitis with the exception of a marked eosinophilia. A skin test for *P. westermani* should be performed in all doubtful cases. Although the usual course of disease is spontaneous remission, bithionol has been found to be an effective drug in active cerebral paragonimiasis and should be used in cases with acute meningitis in order to prevent deterioration. (14 refs.) - *E. L. Rowan.*

Institute of Endemic Diseases
Seoul National University
Seoul, Korea

1622 PROCKOP, LEON D., & *FISHMAN, ROBERT A. Experimental pneumococcal meningitis: Permeability changes influencing the concentration of sugars and macromolecules in cerebrospinal fluid. *Archives of Neurology*, 19(5):449-463, 1968.

Pneumococcal meningitis in dogs was studied to determine the permeability changes which influence the concentration of protein and glucose in purulent cerebrospinal fluid (CSF). The entry rates of labeled albumin, mannitol and 3-*O*-methyl-*d*-glucose (3MG) from blood into CSF were increased in meningitis due to a nonspecific increase in membrane permeability. Mannitol diffusion exceeded that of albumin presumably because mannitol had a smaller molecular weight. In meningitis, inulin exited the CSF more rapidly than albumin. Meningitis is associated with a relative block in the bulk CSF flow of large molecules in the subarachnoid spaces and/or at the arachnoid villi. The transfer rates of 3MG and mannitol from blood into CSF were measured and the transfer constant of 3MG was corrected by subtraction of the mannitol transfer constant; the net 3MG transfer was depressed. Meningitis has 3 different effects on the membrane separating blood and CSF: a nonspecific increase in membrane permeability; a relative block to the exit of large molecules; and a bidirectional inhibition of membrane-carrier mediated diffusion of 3MG. (47 refs.) - *F. J. McNulty.*

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San Francisco, California 94122

1623 PRAKASH, K., & RAY, B. GHOSH. The value of blood culture in the diagnosis of cerebrospinal meningitis with special reference to the isolation of meningococci. *Indian Journal of Medical Research*, 56(12):1747-1754, 1968.

Among 120 Indian children with clinical evidence of cerebrospinal meningitis, *Neisseria meningitidis* was identified in 52 on the basis of cerebrospinal fluid (CSF) smear, CSF culture, or blood culture. The organism was identified only in CSF culture 22 times, only on CSF smear 6 times, and only in blood culture 12 times. The limited positivity of each method suggests the desirability of a simultaneous battery of tests so that a maximum number of cases can be diagnosed. Blood culture was especially useful in isolating 12 other pathogenic strains in this series in detecting a case of chronic meningococcemia. (47 refs.) - *E. L. Rowan.*

Department of Microbiology
Maulana Azad Medical College
New Delhi, India

1624 FUCHS, PETER C., & OYAMA, ALBERT A. Neonatal relapsing fever due to transplacental transmission of Borrelia. *Journal of the American Medical Association*, 208(4): 690-692, 1969.

An infant with clinical evidence of overwhelming sepsis died 39 hours after birth and spirochetes of the genus *Borrelia* were found in peripheral blood, cerebrospinal fluid, and spleen. Organisms were also demonstrated in the peripheral blood of the mother who gave a clinical history consistent with relapsing fever for 3 weeks prior to delivery. Transplacental infection was certainly present as the infant had overwhelming spirochetemia on the first day of life. Tick-borne relapsing fever is endemic in many parts of the world and is found with increasing frequency in the western United States. *In utero* infection occurs and should be considered in the differential diagnosis of neonatal sepsis. (10 refs.) - *E. L. Rowan.*

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1625 PATERSON, PHILIP Y., DROBISH, DIANE G. Cyclophosphamide: Effect on experimental allergic encephalomyelitis in Lewis rats. *Science,* 165(3889):191-192, 1969.

Lewis rats sensitized to spinal cord in adjuvant and exhibiting advanced clinical paralytic signs of experimental allergic encephalomyelitis were treated with cyclophosphamide (5 mg/kg) daily. Of 30 treated animals, 21 recovered rapidly and appeared clinically well within 7 to 12 days. This immunosuppressive agent may prove therapeutically useful in the treatment of autoimmune disease. (19 refs.) - *Journal abstract.*

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Northwestern University Medical Center
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1626 VALENTINE, WILLIAM N., HSIEH, HSIN-SOON, PAGLIA, DONALD E., ANDERSON, HELEN M., BAUGHAN, MARJORIE A., JAFFE, ERNST R., & GARSON, O. MARGARET. Hereditary hemolytic anemia associated with phosphoglycerate kinase deficiency in erythrocytes and leukocytes. A probable X-chromosome-linked syndrome. *New England Journal of Medicine,* 280(10):528-534, 1969.

A hereditary hemolytic anemia associated with a deficiency in the activity of phosphoglycerate kinase in erythrocytes and leukocytes was demonstrated in a large Chinese kindred. Two male children were most severely affected: 5 male relatives in the maternal portion of the pedigree who died in early childhood may have had the same disorder. The mother and maternal grandmother of the propositus had milder hemolysis and a moderate decrease in erythrocyte phosphoglycerate kinase activity, and the mother of his affected maternal third cousin was normal by all functions measured. Enzyme activities in the erythrocytes of 19 other blood relatives, including all paternal relatives, were normal. The family history and the results of biochemical examinations were interpreted as indicating that mosaicism for phosphoglycerate kinase activity may be present in the erythrocytes of the affected females and that severely affected males are hemizygotes. The data are consistent with the hypothesis that the deficiency is X-chromosome linked. (29 refs.) - *Journal abstract.*

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1627 QUEENAN, JOHN T. *Modern Management of the Rh Problem.* New York, New York, Hoeber Medical Division, Harper & Row, 1967, 303 p. $12.50.

Although rapid advances are being made in the techniques of prevention of Rhesus isoimmunization, these have come too late for approximately one million sensitized women of child-bearing age. The first step in management of any pregnancy should be a determination of maternal blood type. Sensitization may be determined by anti-Rh antibody titer, although this is reliable only in the first sensitized pregnancy. Serial amniotic fluid analyses for bile pigments provide the best method for monitoring the course of the fetus, which should be kept *in utero* as long as possible to minimize the risks of prematurity. Optimal time for delivery may be determined by clinical impression or more reliably by roentgenological assessment or amniography. Intrauterine transfusion carries a high risk for both fetus and mother and should be used discriminately by experienced personnel. The newborn with erythroblastosis requires careful observation and management of anemia, kernicterus, and/or prematurity. Written primarily for the obstetrician, this book may be of value to pediatricians, radiologists, and pathologists involved in the team approach to the management of this problem. (400 refs.) - *E. L. Rowan.*

CONTENTS: Discovery of Erythroblastosis Fetalis; Serology of Erythroblastosis Fetalis; Pathology of Erythroblastosis Fetalis; Clinical Management of the Immunized Patient; Amniocentesis; Amniotic Fluid Analysis; Amniography; Intrauterine Transfusion; Delivery; Pediatric Management; Prevention.

1628 GODEL, JOHN C., BUCHANAN, DONALD I., JAROSCH, JEAN M., & McHUGH, MAUREEN. Significance of Rh-sensitization during pregnancy: Its relation to a preventive programme. *British Medical Journal,* 4(5629):479-482, 1968.

In a study of 29 Ss in whom anti-D appeared during the last trimester of pregnancy for the first time, the administration of Rh-immune globulin at delivery caused disappearance of the antibody in 12 of 13 treated Ss with weak antibody titers, but had no measurable effect on one treated case with

high antibody titer 6 weeks after administration of the Rh-immune globulin. Such treatment may reverse early sensitization; therefore antenatal prophylaxis in Rh-negative women with Rh-positive husbands may be worthwhile. A total of 1,001 women of Rh-negative phenotype with Rh-positive husbands were screened and of 444 women who delivered Rh-positive infants, 361 were treated within 48 hours after delivery with either 0.5 ml or 1.5 ml of Rh-immune globulin. The 83 untreated cases included 4 Ss who had high titers of anti-D and whose infants exhibited positive direct Coombs tests on cord blood. The rate of appearance of anti-D was nearly the same for first pregnancies as for subsequent ones (5-6% as compared with 6.5% overall). The 345 treated cases who did not have antibody at delivery did not develop antibody, and of 13 Ss with weak antibody who received treatment only one had detectable antibody after 6 months. In the one treated case with a high anti-D titer, it was postulated that failure to respond to Rh-immune globulin was due either to the fact that γ-globulin had already been produced or that the 0.5 ml dose of immune globulin was inadequate. Since recent work indicates no danger to the fetus or mother from intramuscular injection of immune globulin during pregnancy, it is planned to give 0.5 ml at 34 weeks to all Rh-negative women without detectable antibody and whose husbands are Rh-positive. Another 0.5 ml will be given at delivery of an ABO-compatible Rh-positive infant and further studies made. (14 refs.) *C. A. Rizvi.*

Hematology Research Unit
University of Alberta Hospital
Edmonton, Alberta, Canada

1629 POWELL, L. CHARLES, JR., & LEWIS, BILLY W. Spectrophotometric analysis of amniotic fluid in Rh sensitized pregnancies. *Texas Reports on Biology and Medicine,* 27(2): 471-481, 1969.

Clinical judgment criteria are established which are based on Δ 450 mμ values of the amniotic fluid in Rh-sensitized pregnancies. Infants delivered from Rh-sensitized mothers between 1960 and 1963 were compared with those delivered between 1964 and 1967. There were 42 affected babies in the first group and 89 Rh-sensitized pregnancies with 51 affected babies in the second. Comparison of the 2 periods indicated that while the percentage of mild and moderately affected infants decreased, the percentage of severely affected and stillborn infants increased. The Δ 450 mμ values for infants with hemolytic disease were plotted against the gestation age in weeks; a fetus which was not severely affected by the thirty-fifth gestational week had values below 0.05. A greater number of Δ 450 mμ values of 0.02 were obtained between 26 and 36 weeks of gestational age, and this is the most critical time for fetal evaluation in Rh-isoimmunized patients. If the Δ 450 mμ value is from 0.05 to 0.10 and shows a decreasing trend, the infant may be mildly or moderately affected; when the values have stable or rising trends the infant is severely affected. A value above 0.1 can be expected to be associated with severely affected hydropic or stillborn infants. No babies are lost if their values fall within 2 standard deviations of the normal-mild group. (16 refs.) - *F. J. McNulty.*

Department of Obstetrics and Gynecology
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1630 LIND, T., ANDERTON, K. J., & TACCHI, D. Early induction of labour in cases of Rhesus iso-immunisation. *Lancet,* 1(7595): 585-586, 1969.

In the 4 years 1965-68, labor was induced at 38 weeks (273 days) gestation or less in 148 patients with rhesus iso-immunization. Cesarean section was needed in 34 (23%) patients of whom 7 had neonatal deaths, but no infants were stillborn. In the 114 patients having vaginal delivery, 5 had stillborn infants and 4 had neonatal deaths. The respiratory distress syndrome was commoner in infants delivered by cesarean section, but the interval between induction and delivery was also longer in these infants. If vaginal delivery has not taken place within 24 hours of surgical rupture of the membranes, it is unlikely to do so. It is suggested that, in cases of short gestation, 24 hours is the time after which induction should be regarded as having "failed," and when cesarean section should be undertaken. (6 refs.) *Journal summary.*

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1631 Hypogammaglobulinaemia in the United Kingdom. *Lancet,* 1(7587):163-168, 1969.

Over a 10-year period, 176 patients were diagnosed as having primary hypogammaglobulinemia (IgG less than 200 mg/100 ml). Most patients suffered severe, repeated bacterial infections, demonstrated deficient antibody production, and were improved by injections of immunoglobulin (γ-globulin). Although there

was some decrease in morbidity at a higher dose of γ-globulin, there was also added discomfort and expense, so that 0.025 g/kg of body weight/week was established as the recommended dose with an increase to 0.050 g/kg/week in those who continued to have infections. The highest mortality rate occurred in infants under one year (45%), and 29% of the study group died during the period of study. There appeared to be an unusual incidence of *Pneumocystis carinii* pneumonia, tuberculosis, endothelial and lymphoid malignancy, arthritis (in males) and neurological disorders with MR (8 cases). Patients appeared able to deal with viral infections and 1/3 of the group could tolerate live vaccines. Nineteen percent had reactions to immunoglobulin injection. Immunoglobulin replacement appears essential to these patients, although the heterogeneity of presenting symptoms, responses, and reactions makes individualization mandatory. (24 refs.) - *E. L. Rowan.*

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1632 FALLSTROM, S. P. & BJURE, J. Endogenous formation of carbon monoxide in newborn infants. II. ABO incompatibility. *Acta Paediatrica Scandinavica,* 57(2):137-144, 1968.

Carboxyhemoglobin (COHb) levels were compared in 4 groups of newborn infants in order to assess the frequency and extent of increased hemolysis in ABO incompatibility. The Ss included: 62 newborns with significant jaundice associated with ABO incompatibility; 46 infants with ABO incompatibility; 46 jaundiced infants without hemolytic disease; and 61 newborns of ABO homospecific pregnancies. The jaundiced, ABO incompatible newborns had significantly ($p<0.05$) higher COHb levels than did the nonjaundiced, normal newborns. The infants of heterospecific pregnancies selected without regard to bilirubinemia had significantly ($p<0.05$) higher levels on days 4 to 6 postpartum than did their homospecific counterparts, although their bilirubin levels were equivalent. Furthermore, during the first few days of life the COHb/bilirubin relation was found to be identical in the jaundiced ABO incompatible newborns and the nonjaundiced heterospecific newborns, but a correlation of their COHb and bilirubin levels lasted only briefly postpartum. Since all other factors were eliminated prior to the start of the study, the erythrocyte destruction found could be considered due to ABO incompatibility and the COHb levels a result of it. Furthermore, the significant difference between COHb levels of the nonjaundiced ABO compatible and incompatible newborns indicates that it is a better indication of hemolysis than are bilirubin levels. (22 refs.) - *E. Gaer.*

Department of Pediatrics
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Goteborg SV, Sweden

1633 JANSEN, F. H., HEIRWEGH, K. P. M., & DEVRIENDT, A. Foetal bilirubin conjugation. *Lancet,* 1(7597):702-704, 1969.

Diazoreagents bearing a non-ionized activating group have been applied to the study of fetal bile pigments. It could be demonstrated that at 30-34 weeks of gestation heavily rhesus-immunized human fetuses could form bile pigments which yielded azobilirubin derivatives more hydrophylic than azobilirubin. Separation by thin-layer chromatography suggested that in the analyzed fluid samples bilirubin conjugates were present, although in small amounts. (18 refs.) - *Journal summary.*

Department of Internal Medicine
Academisch Ziekenhuis
Leuven, Belgium

1634 WALKER, W., HUGHES, M. I., & BARTON, M. Barbiturate and hyperbilirubinaemia of prematurity. *Lancet,* 1(7594):548-550, 1969.

Three hundred and sixty-four premature infants had previously been studied for the presence of neonatal jaundice, and repeated bilirubin estimations had been made in those showing more than minimal jaundice. In view of recent reports on the effect of phenobarbitone in reducing neonatal jaundice, the data have been reanalyzed. No significant difference between the infants of mothers receiving or not receiving barbiturate could be demonstrated. It is confirmed that hyperbilirubinemia is less common in infants of women with pre-eclamptic toxemia. The apparent effect of toxemia could not be explained as a feature secondary to the administration of barbiturate in these patients. Because so many factors mediate in the development of "idiopathic" neonatal jaundice, it is difficult to evaluate the effect of individual factors except by carefully planned controlled trials. (10 refs.) - *Journal summary.*

University of Newcastle upon Tyne
Newcastle, England

1635 PORTO, SERGIO O. Jaundice in congenital malrotation of the intestine. *American Journal of Diseases of Children*, 117(6):684-688, 1969.

Hyperbilirubinemia was reported in 11 of 50 cases with malrotation admitted to Children's Memorial Hospital in Chicago since 1955. Thirty-eight patients were admitted for corrective surgery during the first 30 days of life and hyperbilirubinemia was noted in 11 of the 38 patients. Of these 11 patients, one had a blood group incompatibility between infant and mother, and 3 patients had malrotation associated with one or more congenital disorders including mongolism. The remaining 7 cases had hyperbilirubinemia associated with malrotation alone. (15 refs.) *F. J. McNulty.*

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1636 PORTO, SERGIO. Ictericia na crianca (Jaundice in the child). *Revista Brasileira de Medicina*, 26(2):88-93, 1969.

The etiology of jaundice in the newborn, its clinical evaluation, and treatment progress are reviewed. The level of serum globulin has no correlation with the degree of jaundice. Pathological jaundice is associated with red corpuscle anomalies. In hemolytic jaundice, the Rh and ABO incompatibilities play major roles; in these cases an exsanguination transfusion is commonly used as a treatment. Neonatal hepatitis and congenital biliary atresia can cause prolonged jaundice in the newborn; however, atresia can be corrected by surgery. Pathological jaundice can also result from administration to the newborn of large doses of vitamin K, salicylates, sulfas, novobiocin, chloramphenicol, and hormones. Neonatal jaundice can develop into kernicterus, a pathological condition due to the toxicity of the bilirubin to the nervous cell. This toxicity is due to the unconjugated bilirubin which exists in high levels in neonatal jaundice. (40 refs.) *G. Pura.*

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South America

1637 BLUMENSCHEIN, SARAH D., KALLEN, RONALD J., STOREY, BRUCE, NATZSCHKA, JURGEN C., ODELL, GERALD B., & *CHILDS, BARTON. Familial nonhemolytic jaundice with late onset of neurological damage. *Pediatrics*, 43(5):786-792, 1968.

A child with congenital familial nonhemolytic jaundice had 15 1/2 years of normal physical and mental development, except for jaundice with high levels of unconjugated serum bilirubin; at age 15 1/2 years, the child developed progressive neurological disabilities until his death 6 months later. Peritoneal dialysis was not effective in treatment of this patient, which suggests that despite removal of about 1.2 gms of bilirubin, either insufficient pigment was abstracted from critical tissue sites, or that damage, is irreversible. Extensive accumulation of bilirubin was noted at autopsy. (23 refs.) *F. J. McNulty.*

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1638 CHRISTOPHERS, A. J. Does Sydney lead in the diagnosis of lead poisoning in children? *Australian Paediatric Journal*, 5(1):36-37, 1969.

It is unlikely that children in New South Wales are more exposed to lead poisoning than children in other parts of Australia; therefore, the much larger total of diagnoses of lead poisoning in Sydney (42) compared with other state capitals (7) may be due to a difference in diagnostic criteria or to the use of screening tests. In the Sydney cases, positive findings of basophilic stippling of red cells and urinary coproporphyrin were not always necessary for a diagnosis of lead poisoning while in the rest of Australia this is a primary requirement. (No refs.) *E. F. MacGregor.*

Division of Industrial Hygiene
19 Park Street
South Yarra, Victoria, Australia

1639 GOYER, ROBERT A. The renal tubule in lead poisoning: I. Mitochondrial swelling and aminoaciduria. *Laboratory Investigation*, 19(1):71-77, 1968.

Lead acetate fed to 13 rats for 20 weeks produced mitochondrial swelling and intranuclear inclusions in their renal proximal convoluted tubule cells, as well as generalized aminoaciduria. The animals were sacrificed at varying intervals and their kidneys were

examined microscopically and ultra-microscopically and their urines were analyzed chromatographically.The mitochondrial lesions became maximal at 10 weeks and consisted of a rounded shape with short cristae and decreased matrical granules. Intranuclear inclusions appeared to progress with time and were maximal at 20 weeks. Aminoaciduria was generalized, but its severity was not related to the duration of lead ingestion. A positive correlation was found between aminoaciduria and kidney weight. If the increased renal weight is due to increased intracellular fluid, the disturbance may be related to a loss of the kidney's ability to actively transport amino acids. From the study, it appears that the lead injures or interferes with normal mitochondrial membrane activity with a resultant increase in volume due to the influx of water and electrolytes. The large numbers of mitochondria in these cells indicates their importance in oxidative phosphorylation. Therefore, while the exact manner by which lead causes tubular dysfunction is unknown, the ultrastructural changes found in the study would point to an interference with mitochondrial respiration or oxidative phosphorylation as a contributing factor. (23 refs.) *E. Gaer.*

Department of Pathology and the
Genetics Curriculum
University of North Carolina
Chapel Hill, North Carolina 27515

1640 GOYER, ROBERT A., KRALL, ALBERT, & KIMBALL, JOHN P. The renal tubule in lead poisoning: II. In vitro studies of mitochondrial structure and function. *Laboratory Investigation,* 19(1):78-83, 1968.

The mitochondria of the renal proximal convoluted tubule cells from rats fed a diet containing lead for 6 weeks showed a decreased respiratory rate and partial uncoupling of oxidative phosphorylation which was partially reversed by ethylenediaminetetraacetic acid (EDTA). The kidneys from 6 lead-fed rats and 6 normally fed controls were studied electronmicroscopically and biochemically. While mitochondria from both groups appeared condensed, those of the experimental rats also showed more frequent membrane rupture, abnormal cristae arrangement, and internal vacuolation. When the mitochondrial swelling was induced chemically, the optical density of homogenates from the lead-fed rats was less than that of the controls. This was felt to be associated with the membrane rupture of the mitochondria of the experimental rats. Furthermore, addition of adenosine triphosphate (ATP) caused less mitochondrial contraction in the lead-fed rats, probably due to their structural alteration. Aged isolated mitochondria from lead-fed rats showed decreased oxygen uptake and respiratory control ratios during adenosine diphosphate activated respiration. It also decreased progressively with increased aging and EDTA increased it, but not up to control levels. During active respiration, mitochondria swell slightly; addition of ATP will reverse the process. If the mitochondria membrane ruptures, the swelling will not be reversed by ATP. The rapid swelling and breakdown of mitochondria in lead-fed rats probably caused the respiratory-oxidative phosphorylation dissociation noted. The results support the view that ATP synthesis is reduced in these cells. (11 refs.) - *E. Gaer.*

University of North Carolina
School of Medicine
Chapel Hill, North Carolina 27515

1641 FREEMAN, RONALD. Chelating agents in treatment of lead intoxication. *Journal of Pediatrics,* 74(2):322-323, 1969. (Letter)

Lead intoxication in childhood responds well to treatment with *d*-penicillamine, but the length of time of lead storage in bone has yet to be determined. In Queensland, Australia, where chronic renal disease in adults is seen as a sequel to childhood plumbism, an elevated bone-lead level was also found. This result was not found in a Baltimore study; however, this should be confirmed with a proper EDTA mobilization test which measures lead excretion for 4 days after treatment with this chelating agent. (5 refs.) *E. L. Rowan.*

Department of Pediatrics
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Sydney, 2031, Australia

1642 KAPPY, MICHAEL S., & BUCKLEY, JEROME. Primidone intoxication in a child. *Archives of Disease in Childhood,* 44(234): 282-284, 1969.

A 2 1/2-year-old girl who ingested 4.5 g of primidone (about 13 times her daily dose) developed a period of coma with a loss of deep tendon reflexes followed by a recovery period of lessening disorientation, dysarthria, nystagmus, and ataxia. Management was conservative (intravenous fluids), and there was full recovery 5 days after ingestion. The highest

serum barbiturate level of 9.6 mg/100 ml was obtained 6 hours after ingestion; this reflected minimal conversion of primidone to phenobarbitone and pointed out the wide margin of safety of this drug. (30 refs.) *E. L. Rowan.*

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Building 10
Room 4N-250
Bethesda, Maryland 20014

1643 CHISOLM, J. JULIAN, JR. *Journal of Pediatrics*, 74(2):323-324, 1969. (Reply to letter by Freeman).

In a Baltimore study, adolescents on continuous *d* -penicillamine treatment for plumbism were given an EDTA mobilization test to determine if there was residual lead deposition. All of these patients had normal renal function studies, and there was no significant excretion of lead in the urine after 24 hours. A 4-day excretion test is necessary only in those patients with impaired renal function. (8 refs.) - *E. L. Rowan.*

Department of Pediatrics
Baltimore City Hospital
Baltimore, Maryland 21224

1644 CUNNINGHAM, M. D., MACE, J. W., & PETERS, E. R. Clinical experience with phenobarbitone in icterus neonatorum. *Lancet*, 1(7594):550-553, 1969.

To test the clinical feasibility of reducing serum-bilirubin levels in neonates by drug-induced glucuronidation, 52 full-term, healthy infants were given phenobarbitone orally 8 mg/kg/body-weight daily when *icterus neonatorum* first appeared after 24 hours of life. Twelve similarly affected infants who were not given phenobarbitone comprised the control group. The data showed no significant reductions in serum-bilirubin levels between control and treated neonates and suggested that, once unconjugated hyperbilirubinemia exists in the neonate, it is unresponsive to phenobarbitone. (12 refs.) - *Journal summary*

Department of Pediatrics
Naval Hospital
San Diego, California 92134

Trauma or physical agents

1645 TOWBIN, ABRAHAM. Mental retardation due to germinal matrix infarction. *Science*, 164(3876):156-161, 1969.

Fetal anoxia early in the third trimester of pregnancy is associated with germinal matrix infarction and acute, subacute, and chronic cerebral damage. In the premature period (25 to 35 wks gestation) the deep galenic venous system is prominent as is the elaboration of neurohistologic elements from germinal matrix tissue in the periventricular layers of the cerebrum. Hypoxia is reflected in venous thrombosis and subsequent hemorrhagic tissue necrosis. Severe infarction most often results in fetal or neonatal death. Subacute infarction manifest as foci of necrosis may result in death or MR while the more chronic forms of scarring and cystic necrosis appear as MR, cerebral palsy and/or epilepsy. The technique of whole brain histologic sectioning used in over 600 fetal and neonatal brain specimens has made identification of these focal lesions possible and has explained the phenomenon of MR and cerebral palsy in infants without obvious "birth injury." (21 refs.) - *E. L. Rowan.*

Department of Neuropathology
Harvard University Medical School
Boston, Massachusetts 02115

1646 HOBDAY, J. D. The action of environmental factors in hypertrophic pyloric stenosis. *Australian Paediatric Journal*, 5(2):114-115, 1969.

A monozygous twin with hypertrophic pyloric stenosis and spastic diplegia (disorders not present in his twin) had suffered from

perinatal anoxia. Birth order and conditions may activate the hereditary factors which underly hypertrophic pyloric stenosis. The patient was a second twin born after premature labor at 31 weeks gestation. Although normal immediately after the birth, the second twin developed cyanotic attacks on the third and fourth postnatal days. Both twins were in humidicribs for 3 weeks and both were discharged at 7 weeks. The second twin was difficult to feed; he became stiff when held, and he frequently vomited and had mild constipation. Clinical examination revealed a palpable pyloric tumor. A pylorotomy was performed, and the child was discharged. At 18 months the circumference of the skull of the patient was 48 centimeters. He knew only 4 clear words and had taken only 2 steps. In addition, he had a tip-toe stance, adduction of the legs and increased reflexes and tone in the lower extremities. Blood samples confirmed that both twins were from uniovular origin. In this case, only one twin was affected; therefore, factors other than genetic constitution play a part in the occurrence of the disease. The only real difference between the 2 children was the birth order and the anoxia affecting the second born twin. (9 refs.) - *F. J. McNulty.*

Department of Child Health
Princess Margaret Hospital for Children
Box D184
Perth, Western Australia 6001

1647 SWEET, A. Y. The effect of bradykinin on the course of respiratory distress syndrome. *Biologia Neonatorum*, 14(1-2):8-18, 1969.

Eight infants with respiratory distress syndrome (RDS) were given infusions containing bradykinin. Two infants died, one had a dramatic chemical and clinical response and one improved, but the change cannot be attributed to bradykinin alone. The remaining 4 patients survived without chemical evidence that the drug contributed to the favorable outcome. This study does not indicate that bradykinin might be useful in the treatment of RDS. (18 refs.) - *Journal summary.*

Cleveland Metropolitan General
Hospital
3395 Scranton Road
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1648 VAUGHAN, O., & EITZMAN, D. V. Hypoxia and lactate in the newborn puppy. *Biologia Neonatorum*, 14(1-2):42-52, 1969.

In newborn puppies, blood lactate levels were found to increase during the period of hypoxia when the PaO_2 was below 25 mm Hg. No lactate accumulation was noted when the PaO_2 was kept at 35 mm Hg or above for 150 minutes. Sustained periods of hypoxia resulting in a PaO_2 of less than 25 mm Hg are probably detrimental to the human newborn as well as to the puppy. (21 refs.) - *Journal summary.*

University of Florida
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Gainesville, Florida 32601

1649 SEDLACEK, J. Effect of hypoxia, ouabain and tetrodotoxin on the parameters of optic evoked potentials in chick embryos. *Physiologia Bohemoslovaca*, 18(1):71-78, 1969.

Previous studies have shown that the electrical activity, membrane adenosine triphophatase activity, and the sensitivity to membrane inhibitors develop in parallel in embryonic brain. Therefore, the effects of hypoxia, ouabain, and tetrodotoxin (which, respectively, block the development of cellular energy sources, active membrane transport, and semipermeability of the neuronal membrane) on optic electrical potentials evoked by light stimuli were studied in 18- to 21-day-old chick embryos. Light was flashed into one eye of the embryos, and the evoked electrical potentials were recorded from the surface of the mesencephalic optic lobes. Hypoxia with brain oligemia, which was induced by ligature of the neck, abolished evoked responses, and resistance to hypoxia increased with embryonic age. Ouabain (3.4×10^{-2}M), which was applied to the surface of the brain in the vicinity of the recording electrode, abolished first the negative wave of the evoked potential, and then the positive wave; resistance to the action of ouabain was again proportional to embryonic age. Tetrodotoxin (3.19×10^{-5} M) inhibited only the dominant spike component of the evoked potentials. Most of the properties required for adult neuronal function are present in the neurons of chick brain embryos after the seventeenth day of incubation and after the seventeenth day, further development is mainly quantitative. (22 refs.) *K. Jarka.*

Institute of Physiology
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Charles University
Prague, Czechoslovakia

1650 POURFAR, M., & CHAFIIAN, J. Permanent gastrostomy in severely brain-damaged children. *Developmental Medicine and Child Neurology*, 11(2):214-217, 1969.

Permanent gastrostomy was well tolerated and beneficial for 21 infants and children with severe brain damage. These Ss were selected because they manifested excessive tracheopharyngeal secretion, dysphagia, vomiting, frequent periods of aspiration, and/or pneumonia. The Stamm-Senn type of gastrostomy was performed and on the third postoperative day, clear fluid was given. A full diet was instituted at the end of the third day. Metrecal and strained baby food were used. All patients tolerated the procedure; fever and abdominal distenion were the most common postoperative problems. There were no deaths from the operation. This procedure should be useful for relief of severe, temporary, or permanent dysphagia. (4 refs.) *B. Bradley.*

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Brooklyn, New York 11203

1651 WOLAKI, WILLIAM, AND LIGHT, GERALD S. Cerebral dysfunction in children: Do not procrastinate! *Clinical Pediatrics*, 8(1):5, 1969.

Early diagnosis and treatment of children with cerebral dysfunction is advisable, not only for the affected child's sake, but also for possible amelioration of unnecessary strain on parents and siblings which uncertainty and inaction may impose. To meet all needs of the patient, a clinic with a multidisciplinary staff is essential. (No refs.) - *E. F. MacGregor.*

C. S. Mott Foundation
Children's Health Center
Flint, Michigan 48503

1652 MEYER, ROGER J., STAFFORD, RICHARD L., & WOODY, JEAN. A clinical report of J. A.: A child with a chronic brain dysfunction. *Journal of School Health*, 39(1):69-70, 1969.

The need for greater care in diagnosis, the use of a clinic team for evaluation, and less haste in advising institutionalization for brain-injured children is illustrated in a clinical study of an 8-year-old child. In spite of a diagnosis of inoperable intracranial hemorrhage in infancy and subsequent slow development, the parents refused to consider institutionalization. After repeated neurological tests, he was found to be dull normal with a communication disorder. A special preschool education program with intensive speech therapy was started with this patient, and results are encouraging. (3 refs.) - *E. F. MacGregor.*

Infant Welfare Society of Chicago
Chicago, Illinois

1653 SCHWALB, EUGENE, BLAU, HAROLD, & BLAU, HARRIET. Child with brain dysfunction. *Journal of Learning Disabilities*, 2(4):182-188, 1969.

The child with minimal brain dysfunction presents a special challenge to both the physician and the educator for the former must identify the specific disability and the latter must design a specific remedial program. The modified neurological examination must include a developmental analysis of performance and intelligence, language, orientation, "soft signs," and perception. Sophisticated psychometric tests now exist to delineate specific deficiencies. Within the framework of the individual child's strengths and weaknesses, the educator may modify curriculum with particular attention to combinations of visual, auditory, kinesthetic and tactile modalities. A significant area which has largely been overlooked is teaching the nonreader with the help of tape recordings. A programed learning system must be developed so that each child may be rewarded with success in the learning situation and thus avoid the emotional sequelae of constant failure in the classroom. (17 refs.) - *E. L. Rowan.*

No address

1654 Electrode heads off cerebral damage. *Medical World News*, 9(9):26, 1968.

The development of a pressure switch, which can be positioned epidurally to detect increases in intracranial pressure before clinical signs appear, is credited with preventing brain damage or death in several patients. Pressure against the electrode is measured on a water manometer which is accurate to 1.9mm and remains accurate over long periods of time. (No refs.) - *E. F. MacGregor.*

388-623 O - 70 - 6

1655 POLLOCK, G. A., & STARK, GORDON. Long-term results in the management of 67 children with cerebral palsy. *Developmental Medicine and Child Neurology*, 11(1):17-34, 1969.

A follow-up study was made of 67 former pupils of a special school for children suffering from cerebral palsy. Twenty-four of these were gainfully employed and 16, who were still in training, seemed likely to become so. Sixty percent of these former pupils could, therefore, be considered employable. Of the patients with hemiplegia, 83% were working, all in open employment; by contrast, only 44% of the diplegic patients and 36% of the dyskinetic patients were working and only 28% and 14%, respectively, were in open employment. The main obstacles to employment were physical disability and poor intellectual endowment. Multiplicity of handicaps was less important in this respect, as it usually occurred in patients who were prevented from working by the severity of their physical handicap. The expenditure of large sums of money on the education of severely handicapped children can be justified on humanitarian grounds alone. (No refs.) - *Journal summary.*

Scottish Council for the Care of Spastics, Inc.
5/6 Rillbank Terrace
Edinburgh 9, Scotland

1656 PETERSON, HAMLET A., & COVENTRY, MARK B. Long-term results of surgical treatment of adults with cerebral palsy. *Developmental Medicine and Child Neurology*, 11(1):35-43, 1969.

Seventeen adults with cerebral palsy who had undergone 39 operations for deformities were re-examined 1 1/4 to 31 (average 9 11/12) years later. Thirty-one operations resulted in improvement, 5 in no improvement, and 3 in worsening of the patient's condition. A method of evaluating the surgical results in adults with cerebral palsy is presented. It is hoped that this limited study will encourage those who have a larger pool of patients readily available to gather and present material to shed more light on the problems of adults with cerebral palsy. (9 refs.) - *Journal summary.*

Orthopedic Surgery
Mayo Clinic and Mayo Foundation
Rochester
Minnesota 55901

1657 LILES, SAMUEL L., & DAVIS, GEORGE D. Athetoid and choreiform hyperkinesias produced by caudate lesions in the cat. *Science*, 164(3876):195-197, 1969.

Small, unilateral lesions, which damage exclusively the anteroventral region of the caudate nucleus of the cat, produce a stable and permanent behavioral change resembling human athetoid and choreiform hyperkinesias. These symptoms are not seen after generalized destruction of the caudate nucleus. (5 refs.) *Journal abstract.*

Louisiana State University
Medical Center
New Orleans, Louisiana 70112

Disease or disorders of metabolism, growth or nutrition

1658 DANKS, D. M., & STEVENS, B. J. Diagnosis of Wilson's disease in children with liver disease: A report of two families. *Lancet*, 1(7584):22-25, 1969.

Four children with cirrhosis of the liver are described in 2 families. Three of the 4 children were investigated extensively, and it is suggested that they had Wilson's disease, even though they lacked Kayser-Fleischer rings (except, terminally in one case) and had normal or high levels of ceruloplasmin and serum-copper. Urinary copper excretion was mildly elevated in only 2 of the children, but urinary copper excretion after penicillamine was excessive and the copper content of the liver was very high in all 3. Two of the children were siblings and died without adequate penicillamine therapy; necropsy confirmed the elevated copper content of the liver in both, and also showed excess copper in the brain of the older boy. The remaining, unrelated patient was studied with copper-64 with results which supported the diagnosis of Wilson's disease. Since treatment was started, she has

made good progress with penicillamine treatment. (14 refs.) - *Journal summary.*

Royal Children's Hospital
Melbourne, Victoria 3052
Australia

1659 LESNY, IVAN, & TRESOHLAVA, ZDENKA. An EEG study of relatives of children with phenylketonuria. *Developmental Medicine and Child Neurology*, 11(3):365-369, 1969.

In 14 families of children with phenylketonuria, 31 relatives were given EEGs, and major electrical abnormalities were noted in 11 persons in 5 families. Previous studies had found a lower incidence of EEG abnormalities. Among parents (20 persons), 8 had a major abnormality (4 with paroxysmal bursts of spikes, 1 with generalized abnormalities, and 3 with a focus of sharp waves), while 4 showed mild EEG changes. Of 7 siblings, 2 with major changes were noted and one other relative with a major change was found. Thus, 40% of the parents showed a major EEG abnormality. No correlation was found between serum levels of phenylalanine and the degree or type of electrical change. The EEG abnormalities found in phenylketonuria may be clinically and genetically independent of the other manifestations of this illness. (4 refs.) - *W. J. Klein.*

Division of Child Neurology
Faculty of Paediatrics
Charles University
Prague, Czechoslovakia

1660 BESSMAN, S. P., WAPNIR, R. A., PANKRATZ, H. S., & PLANTHOLT, BARBARA A. Maternal phenylalanine deprivation in the rat: Enzymatic and cellular liver changes in the offspring. *Biologia Neonatorum*, 14(1-2):107-116, 1969.

Litters of rats placed on a phenylalanine-deficient diet since the last third of the gestation and continued on the same intake for the following 10 days after delivery failed to normally gain weight and develop their phenylalanine hydroxylase enzymatic system. Lysosomal enzymes become more active after 6 days of age. Aside from a general increase in autophagic vacuoles, the morphology of the livers does not show cause for the deterioration of the whole animal. A normal protein intake by the dams during fetal development and lactation appears to be essential for normal growth and survival. This cannot be compensated by maternal endogenous proteins. (18 refs.) - *Journal summary.*

University of Southern California
Los Angeles, California 90033

1661 KIHARA, HAYATO, & GERBRANDT, GRACE M. Repression of liver phenylalanine hydroxylase activity in organ culture. *California Mental Health Research Digest*, 7(2):72-73, 1969.

Phenylalanine hydroxylase (PAH) of rat liver *in vitro* was suppressed by the addition of high concentrations of phenylalanine to the culture media. This organ culture approach can be used as a pilot study for enzyme suppression in human liver tissue in order to elucidate the biochemical defect in phenylketonuria. After incubation in medium 199, the liver tissue was homogenized and the extracts were assayed for PAH activity. When the liver slices were incubated for 16 hours with increasing amounts of phenylalanine, there was an initial stimulation of activity; however, as higher concentrations of phenylalanine were reached, the PAH activity was suppressed. (No refs.) - *F. J. McNulty.*

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3530 Pomona Boulevard
Pomona, California 91766

1662 BERMAN, JULIAN L., CUNNINGHAM, GEORGE C., DAY, ROBERT W., FORD, ROBIN, & *HSIA, DAVID Y. Y. Causes for high phenylalanine with normal tyrosine: In newborn screening programs. *American Journal of Diseases of Children*, 117(1):54-65, 1969.

An investigation was made of 125 index cases, with persistent elevated phenylalanine levels of 6 mg/100 ml and normal or decreased tyrosine levels, who were detected in large part (95%) by routine newborn screening in 11 centers in 7 states. The cases were divided into Group 1 (phenylalanine levels of 20 mg/100 ml or more; incidence of 1/20,000) and Group 2 (phenylalanine levels less than 19.9 mg/100 ml; incidence of 1/50,000); the latter were detected for the first time by routine screening and did not show MR. Genetic studies showed that families in Group 1 segregated as an autosomal recessive trait (ratio of 0.25), while those in Group 2 were more heterogeneous, and no differences in phenylalanine tolerance were observed in both sets of parents. Dietary treatment is without effect in Group 2, while Group 1 patients treated prior to 335 days of age had

a mean intelligence quotient to developmental quotient (IQ/DQ) of 98.7, compared with 64.4 for late treated and untreated siblings and 68.5 for later treated index patients. The recent apparent increase in phenylketonuria is probably due to the more extensive identification of Group 2 patients. Dietary treatment is effective in preventing mental deficiency in Group 1 patients, particularly when instituted under 30 days of age. (21 refs.) - *M. G. Conant.*

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Hines, Illinois 60141

1663 Phenylketonuria: Therapeutic problems. *British Medical Journal*, 1(5642):510, 1969. (Letter)

Proper diet may not be a satisfactory treatment for patients with phenylketonuria. Serious defects of experimental design which exist in all studies of the dietary therapy include: too few patients who also are often very heterogeneous; study design differences which prevent valid comparison of data; tests of mental development of infants and older children which cannot be compared; transient hyperphenylalaninemic individuals which may be included accidentally; and environmental factors which have not been fully evaluated. The Guthrie test as well as other definitive tests should be used on patients in order to complete the selection of Ss for a controlled trial of dietary therapy. (11 refs.)
L. E. Bayliss.

Genetics Unit
Boston City Hospital
Boston, Massachusetts 02118

1664 HARRIES, J. T., SEAKINS, J. W. T., ERSSER, R. S., & *LLOYD, JUNE K. Recovery after dietary treatment of an infant with features of tyrosinosis. *Archives of Disease in Childhood*, 44(234):258-267, 1969.

A 5-month-old girl was diagnosed as having tyrosinosis on the basis of obstructive jaundice, developmental retardation (DQ 20), and aminoaciduria. Blood levels of tyrosine, phenylalanine, and methionine were raised and the excretion of tyrosine and phenolic acids was greatly increased. There was also an increased urinary excretion of phosphorus and the child subsequently developed rickets. A diet restricted in tyrosine, phenylalanine, and methionine was instituted and vitamin D intake increased. Physical growth continued, DQ improved to 100 at 17 months, and liver and renal functions approached normal. Testing with a "normal" protein diet showed that the child was able to metabolize all amino acids and the special diet was discontinued at age 17 months. The basic defect in this patient could not be determined, but it was probably different from that found in other cases of "tyrosinosis." (34 refs.)
E. L. Rowan.

*Institute of Child Health
30 Guilford Street
London, W. C. 1, England

1665 BODEGARD, GORAN, GENTZ, JOHAN, LINDBLAD, BENGT, LINDSTEDT, SVEN, & *ZETTERSTROM, ROLF. Hereditary tyrosinemia. III. On the differential diagnosis and the lack of effect of early dietary treatment. *Acta Paediatrica Scandinavica*, 58(1):37-48, 1969.

The differentiation between hereditary tyrosinemia with its nodular cirrhosis of the liver and multiple renal tubular disturbances and a transient hypertyrosinemia of early infancy is difficult. Despite restricted intake of phenylalanine and tyrosine after the diagnosis of hereditary tyrosinemia was established, a baby died at age 5 1/2 months from hepatic failure and septicemia. A second infant responded well to the same regime, as transient hypertyrosinemia apparently represents an overload of all protein on an immature system. Biochemically, both patients had elevated serum tyrosine, increased urinary excretion of Millon-reacting compounds, and a similar pattern of phenolic acids. The patient with hereditary tyrosinemia did have hypermethioninemia, abnormal phenylalanine tolerance tests, and only a gradual response to the restricted diet. The failure of dietary management of this patient suggests that the disease mechanism is more complicated than a simple enzymatic deficiency. (39 refs.)
E. L. Rowan.

*Crown Princess Lovisa's
Children's Hospital
Stockholm K, Sweden

1666 PRESLEY, GEORGE D., STINSON, IVA N., & *SIDBURY, J. B. Homocystinuria: At the North Carolina State School for the Blind. *American Journal of Ophthalmology*, 66(5):884-889, 1968.

Of 379 students (CA 8-19; IQ 57-128) at the North Carolina State School for the Blind, 59--or 15.5%--had homocystinuria, 5 of whom also had generalized aminoaciduria, and 2 others had cystinuria. Urine specimens obtained from all students 3 hours after a high

protein meal were screened for sulfur-containing amino acids using the cyanide-nitroprusside reaction. Urine specimens showing a pink to purple color were then checked semi-quantitatively by a modified cystine test. All were positive for varying amounts of sulfur-containing amino acid. Paper chromatography and/or electrophoresis were then used to identify the amino acid. The eyes of students with homocystinuria were then examined. Multiple defects were found in 12 patients. Sixteen had ocular defects considered unrelated to homocystinuria. The most common ocular defects included congenital cataract (28.8%), optic atrophy (15.3%), microphthalmus (13.6%), and congenital glaucoma (12.8%). Nine other defects occurred less frequently. Dislocated lenses, previously thought to be present in all homocystinurics, were found in only 4 patients. Many students may have had defects not apparent due to ocular surgery prior to enrollment. Homocystinuria screening and other studies should be performed on patients with ocular defects to ascertain the relationship, if any, between other aminoacidurias and congenital ocular anomalies. (7 refs.)
R. D. Nunn.

*Duke University Medical Center
Durham, North Carolina 27706

1667 KAESER, A, C., RODNIGHT, R., & ELLIS, B. A. Psychiatric and biochemical aspects of a case of homocystinuria. *Journal of Neurology, Neurosurgery and Psychiatry*, 32(2):88-93, 1969.

An adult male with homocystinuria and a psychiatric disorder was treated with pyridoxine phosphate; the treatment lowered the homocystine in the urine and plasma, but no change occurred in his ability to metabolize an excessive load of methionine. To determine the degree of association between homocystinuria and schizophrenia, a search for cases in psychiatric hospital records was made. Of 174 identifications made, none appeared to have homocystinuria. In homocystinuric Ss who do not respond to pyridoxine phosphate, the degree of enzyme defect may be too severe for reactivation to occur. Environmental factors may also condition enzyme co-factor interaction. (22 refs.)
F. J. McNulty.

Runwell Hospital
Wickford, Essex
England

1668 PORTER, MYNA T., TRAMMELL, JOE, & *KIHARA, HAYATO. Cystathionine synthase in homocystinuria. *California Mental Health Research Digest*, 7(3):133-134, 1969.

Cystathionine synthase has been found to be deficient in cultured fibroblasts from homocystinurics. Skin biopsies from homocystinuric and control Ss were explanted in Blake bottles, and the cells were scraped, washed, suspended, and lysed. The extract was then incubated with *L*-homocysteine and C^{14}-labeled *L*-serine and *L*-cysteine. The Carbon-14-cystathionine was separated by ion exchange resin and the degree of radioactivity in cystathionine fraction was measured. The specific activity of cystathionine synthase was determined to range between 1.50 and 5.73 nanomoles cystathionine/hour/mg protein in normal fibroblasts; however, in homocystinuric cells the range was between 0 and 0.203 nanomoles cystathionine/hour/mg protein. (No refs.) - *V. G. Votano.*

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1669 BARBER, G. W., & SPAETH, G. L. The successful treatment of homocystinuria with pyridoxine. *Journal of Pediatrics*, 75(3):463-478, 1969.

Four patients with homocystinuria were treated with pyridoxine, and 3 of the 4 had biochemical normalization. The other patient developed resistance to the biochemical effects of pyridoxine. With treatment, the amino acids in the urine, plasma and red blood cells returned to normal in 3 Ss. The hair of one patient also returned to normal pigmentation. There was a direct correlation between the concentration of homocystine and abnormality of platelet stickiness noted when homocystine was added to the blood of a normal volunteer. Three of the Ss had abnormal platelet stickiness which may account for the high risk of thromboembolic disease in homocystinurics. Pathologic studies of the brain suggest that MR in homocystinuria is the result of cerebral vascular disease. The total sulfur excreted in the urine of 2 patients increased with pyridoxine treatment. The beneficial effect of pyridoxine *in vivo* may be due to the stimulation of a structurally altered apoenzyme by the mass action effect of the elevated level of the coenzyme, pyridoxal phosphate. Ss who do not respond

to pyridoxine treatment may need dietary management. (70 refs.) - *F. J. McNulty.*

The Wills Eye Hospital and
Research Institute
1601 Spring Garden Street
Philadelphia, Pennsylvania 19130

1670 DANCIS, JOSEPH, HUTZLER, JOEL, & COX, RODY P. Enzyme defect in skin fibroblasts in intermittent branched-chain ketonuria and in maple syrup urine disease. *Biochemical Medicine,* 2(5):407-411, 1969.

Maple syrup urine disease (MSUD) and intermittent branched-chain ketonuria (IBCK) patients showed a reduction in the decarboxylation ability of cultured skin fibroblasts. Fibroblasts cultured from both MSUD and IBCK patients showed a reduction in the ability to decarboxylate leucine, isoleucine, valine, and isovalerate. About 10^6 fibroblasts were incubated with one of these 4 amino acids 90 minutes at 37°. The substrates were labeled with ^{14}C at the first carbon and the liberated ^{14}carbon dioxide ($^{14}CO_2$) was collected and counted. The MSUD fibroblasts had 0 counts/minute for leucine, valine, and isoleucine, and 9 counts/minute for isovalerate. IBCK fibroblasts had 46 counts/minute for leucine, 143 counts/minute for valine, 175 counts/minute for isovalerate, and 0 counts/minute for isoleucine. All values in the abnormal fibroblasts were considerably reduced from normal. Experimental conditions were made to minimize the accumulation of metabolites. Since recent evidence indicates that there is more than one decarboxylase for the branched-chain keto acids, each with a specific substrate, it is suggested that there is one polypeptide unit that is common to all 3 enzymes or to some structural or regulatory part of the enzyme complex which is defective. (17 refs.) - *F. J. McNulty.*

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1671 GOODMAN, STEPHEN I., POLLAK, SHLOMO, MILES, BARBARA, & O'BRIEN, DONOUGH. The treatment of maple syrup urine disease. *Journal of Pediatrics,* 75(3):485-488, 1969.

The severe central nervous system dysfunction associated with maple syrup urine disease may be ameliorated by correcting the serum levels of valine, isoleucine, and leucine by means of a diet low in these amino acids. Three infants with the branched-chain keto-aciduria were begun on the diet within 2 weeks after birth and discharged from hospital within 12 weeks. Careful laboratory monitoring is essential because of variable dietary tolerance to these amino acids. Development of a dry base mix consisting of a dextrimaltose-corn oil-mineral mix, an iron-vitamin mix, and an amino acid mix has facilitated home management. Despite treatment, all 3 children had some central nervous system damage, although the full extent cannot yet be determined. In order to prevent such damage, treatment may need to be initiated even earlier in life. (5 refs.) - *E. L. Rowan.*

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1672 TADA, KEIYA, NARISAWA, JUNIAKI, YOSHIDA, TOSHIO, KONNO, TASUKE, YOKOYAMA, YOSHIMASA, NAKAGAWA, HIROSHI, TANNO, KANEO, MOCHIZUKI, KEIKO, & *ARAKAWA, TSUNEO. Hyperglycinemia: A defect in glycine cleavage reaction. *Tohoku Journal of Experimental Medicine,* 98(3):289-296, 1969.

Liver biopsy sample from a one-year-old girl with nonketotic hyperglycinemia, an inborn error of metabolism accompanied by convulsions and MR, showed impaired cleavage of glycine into CO_2, methylene-tetrahydrofolate, and ammonia. Liver homogenates showed normal serine hydroxymethylase and serine dehydratase levels, enzymes which reversibly catalize reactions between methylene-tetrahydrofolate plus glycine and serine plus tetrahydrofolate. (20 refs.) - *K. Jarka.*

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1673 BUDNICK, JACK. The Lesch-Nyhan syndrome. *Journal of Dentistry for Children,* 36(4):51-54, 1969.

Children with the Lesch-Nyhan syndrome (MR, neurological disorders, hyperuricemia, and self-mutilation) often require dental attention because of their self-destructive biting. Biting usually occurs in a fit of temper or frustration and is apparently not associated with a loss of pain. The hands and lips are most commonly bitten and a mixture of trauma and secondary infection may result in marked disfigurement. Although extraction of all teeth is sometimes recommended, it is more desirable to simply prevent occlusion. Acrylic splints to cover both

arches or even just the posterior teeth are quite satisfactory for this purpose. (12 refs.) - *E. L. Rowan.*

Department of Pedodontics
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1674 New gout syndrome identified. *Medical World News*, 10(27):20, 1969.

Eighteen Ss with a new syndrome characterized by a partial deficiency of hypoxanthine-guanine phosphoribosyl-transferase (.01 to 17% of normal), renal calculi, gouty arthritis, small body proportions, and MR (in 3 Ss) were found to produce excessive amounts of uric acid. This new syndrome appeared after puberty in all 18 Ss, and it is transmitted as a sex-linked recessive. Preferred treatment is the same as for regular gout--allopurinol to reduce uric acid formation. (No refs.) - *M. Plessinger.*

1675 BERMAN, PETER H., BALIS, M. EARL, & DANCIS, J. A method for the prenatal diagnosis of congenital hyperuricemia. *Journal of Pediatrics*, 75(3):488-491, 1969.

Eight women (between the twelfth and twentieth wk of gestation) underwent amniocentesis prior to therapeutic abortion in order to establish methods for *in utero* diagnosis of congenital hyperuricemia. Cells from the amniotic fluid were washed, adjusted to pH7, and resuspended. After the cellular concentration was determined, the suspension was added to incubation vials containing adenine-^{3}H and hypoxanthine-^{14}C. A 13- to 14-fold variation in radioactivity of inosinate pyrophosphate phosphoribosyl transferase in normal cells was found with a parallel variation in adenylate pyrophosphate phosphoribosyl transferase. Detection of congenital hyperuricemia may be possible with amniocentesis by the comparison of the 2 enzyme levels in amniotic cells. This technique eliminates the necessity to grow amniotic cells, thus avoiding delays and technical problems. (12 refs.) *V. G. Votano.*

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1676 NYHAN, WILLIAM L., JAMES, JOHN A., TEBERG, ANNABEL J., SWEETMAN, LAWRENCE, & NELSON, LESLIE G. A new disorder of purine metabolism with behavioral manifestations. *Journal of Pediatrics*, 74(1):20-27, 1969.

Hyperuricemia with increased urinary excretion of uric acid was observed in a male patient at 2 months of age. At 3 years, the boy showed mild MR (developmental quotient of 60-65), dysplastic teeth, failure to cry with tears, absence of speech, and autistic behavior. Hypoxanthine guanine phosphoribosyl transferase activity was increased. The conversion of labeled glycine to uric acid was 7 times that of a normal control which indicates an increased synthesis of purine *de novo*. Peak conversion occurred in the first 12 hours following glycine injection, earlier than in patients with uric acid overproduction associated with self-mutilating behavior. Treatment of the patient with 50 mg allopurinol/day decreased the total oxypurines and the uric acid excreted. This case of hyperuricemia appears to represent an inborn error of purine metabolism. (10 refs.) - *M. G. Conant.*

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1677 MARKS, J. F., KAY, J., BAUM, J., & CURRY, L. Uric acid levels in full-term and low-birth-weight infants. *Journal of Pediatrics*, 73(4):609-611, 1969.

Serum uric acid levels were found to be higher in low-birth-weight infants than in full-term infants. In full-term infants, maternal blood, cord blood, one-day and 2-day blood specimens were obtained. In low birth-weight maternal blood, cord blood and daily blood specimens were obtained for the first 7 days of life, and blood specimens were obtained at 3 weeks of age. Full-term infants were fed orally every 4 hours, beginning at 12 to 16 hours of age. Low birth-weight infants were not fed orally for 24 hours. The peak value of serum uric acid in low birth-weight infants is higher and more prolonged than that of full-term infants. Peak uric acid levels at one and 2 days of age in low birth-weight infants were 6.8 mg/100 ml compared to 5.6 mg/100 ml at one day, and 3.8 mg/100 ml at 2 days in full-term infants. Statistically

valid ($p<0.02$) differences were found between cord and maternal blood uric acid levels in both groups of infants. (6 refs.) *F. J. McNulty.*

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1678 DeMARS, ROBERT, SARTO, GLORIA, FELIX, JEANETTE S., & BENKE, PAUL. Lesch-Nyhan mutation: Prenatal detection with amniotic fluid cells. *Science,* 164(3885): 1303-1305, 1969.

Cells cultured from the amniotic fluid of a 22-week fetus in a heterozygote for the X-linked Lesch-Nyhan mutation, which results in neurological and developmental disorders, lacked sex chromatin and were unable to incorporate hypoxanthine. The diagnosis of a mutant male was confirmed upon birth of enzyme-deficient, hyperuricemic twin boys whose amniotic membrane cells failed to incorporate hypoxanthine. (19 refs.) - *Journal abstract.*

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1679 KAUFMAN, JOEL M., GREENE, MARTIN L., &*SEEGMILLER, J. EDWIN. Urine uric acid to creatinine ratio--A screening test for inherited disorders of purine metabolism: Phosphoribosyltransferase (PRT) deficiency in X-linked cerebral palsy and in a variant of gout. *Journal of Pediatrics,* 73(4):583-592, 1968.

Patients with the syndrome of MR, self-mutilation, choreoathetosis, and hyperuricemia due to a deficiency of the enzyme phosphoribosyltransferase can be detected with a simplified automated screening test in which the ratio of uric acid to creatinine in morning urine is diagnostic. A single sample is sufficient to screen children in order to determine those with the enzyme deficiency. Adults with gout (a partial enzyme deficiency) are detected by a test in which the ratio of uric acid to creatinine is determined in a 24-hour urine sample taken while the patient is on a purine-free diet. This test was used on a total of 1,573 patients of whom 813 were MR, 300 were non-retarded male delinquents, 130 were gouty or hyperuricemic non-gouty adults, 25 Ss had various other diseases, 13 were Lesch-Nyhan Ss, 8 were Ss with gout and partial PRT deficiency and 184 were normal Ss. The urinary ratios of uric acid to creatinine were: non-retarded delinquents, 0.08-0.73; MR Ss, ages 2-12 years, 0.25-1.68; MR Ss, ages 13-25 years, 0.13-1.22; and MR Ss ages 26-78 years, 0.08-1.4. The normal mean uric acid to creatinine urinary ratio is 1.55 in the first week of life, 0.61 at age 10 years, and 0.49 for normal adults. (33 refs.) - *F. J. McNulty.*

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1680 BERMAN, PETER H., BALIS, M. EARL., & DANCIS, JOSEPH. Congenital hyperuricemia: An inborn error of purine metabolism associated with psychomotor retardation, athetosis, and self-mutilation. *Archives of Neurology,* 20(1):44-53, 1969.

Allopurinol was not successful in the treatment of 4 children with congenital hyperuricemia. Attempts were made to reduce uric acid formation in 4 male children (CA 3 to 5 yrs) who had clinical symptoms of hyperuricemia, hyperuricosuria, choreoathetosis, MR, and compulsive self-mutilation. Allopurinol, a feedback inhibitor precursor active in purine biosynthesis, was fed to the patients, and although there was a reduction in urinary uric acid concentration, there was no beneficial effect on the neurological manifestations. In these Ss, the reduction in uric acid was associated with a rise in urinary hypoxanthine and xanthine. Because the inheritance of this disease is now known, and because no effective treatment has been found, genetic counseling is the best contribution that a physician can offer. (31 refs.) - *F. J. McNulty.*

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1681 AMPOLA, MARY G., EFRON, MARY L., BIXBY, EMILY M., & MESHORER, EDWARD. Mental deficiency and a new aminoaciduria. *American Journal of Diseases of Children,* 117(1): 66-70, 1969.

The urine of an SMR 47-year-old male patient who had a high susceptibility to infection gave a positive reaction to the cyanide nitroprusside test. The urine was found to contain large amounts of a previously unknown sulfur-containing amino acid related to cystine. Column chromatographic analysis of the urine showed an unidentified material which was eluted between glutamine and glutamic

acid. This substance was isolated in a crude form by passage of the urine over Dowex 2-X8 resin, elution with acetic acid, passage of the effluent over Dowex 50W-X8 resin, and elution with ammonia. The patient excreted 300 mg of the unknown/day on a normal diet and 2.9 mg/day following an oral load of 100 mg cysteine/kg body weight. Administration of the same oral load to 2 normal adults produced the unknown (20 mg/6 hr) which indicates that it is probably a normal intermediary metabolite. It has subsequently been identified as β-mercaptolactate-cysteine disulfide. (4 refs.) - *M. G. Conant.*

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1682 CRAWHALL, JOHN C., PARKER, ROBIN, SNEDDON, WALTER, & YOUNG, ELISABETH P. β-mercaptolactate-cysteine disulfide in the urine of a mentally retarded patient. *American Journal of Diseases in Children,* 117(1): 71-82, 1969.

A new amino acid found in the urine of an MR patient was isolated by preparative column chromatography and purified by ion exchange and paper chromatography, gel filtration, and high voltage electrophoresis. Infrared and mass spectral data for the amino acid and the trifluoroacetyl derivatives of its methyl, propyl, and butyl esters indicated that the amino acid was a β-mercaptolactate-cysteine disulfide, an analog of cystine. The assigned structure was confirmed by partial synthesis, degradation, and mass spectrometry. The metabolic disorder leading to the formation of the sulfur-containing amino acid is probably of intracellular origon. (25 refs.) *M. G. Conant.*

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1683 TADA, KEIYA, YOKOYAMA, YOSHIMASA, NAKAGAWA, HIROSHI, & *ARAKAWA, TSUNEO. Vitamin B_6 dependent xanthurenic aciduria (The second report). *Tohoku Journal of Experimental Medicine,* 95(2):107-144, 1968.

The basic defect of vitamin B_6-dependent xanthurenic aciduria is probably the inability of the apoenzyme, kynureninase, to bind with the coenzyme, pyridoxal phosphate. Two sibs of a family had xanthurenic aciduria associated with MR. Excretion of xanthurenic acid, kynurenine, kynurenic acid, and 3-hydroxykynurenine could be normalized by the administration of vitamin B_6. Similarly, liver kynureninase activity could be increased *in vitro* by the addition of vitamin B_6. Although one child was SMR, her affected sibling had only a mild speech defect. The less severely affected girl had received a vitamin preparation containing vitamin B_6 throughout infancy while the SMR child had not; this would indicate that this disorder may be susceptible to dietary treatment. (14 refs.) - *L. S. Ho.*

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1684 TADA, KEIYA, YOSHIDA, TOSHIO, YOKOYAMA, YOSHIMASA, SATO, TETSUO, NAKAGAWA, HIROSHI, & *ARAKAWA, TSUNEO. Cystathioninuria not associated with vitamin B_6 dependency: A probably new type of cystathioninuria. *Tohoku Journal of Experimental Medicine,* 95 (3):235-242, 1968.

A male infant (from consanguineous parents) with retarded motor and mental development was found to have cystathioninuria. Methionine loading caused a marked elevation of cystathionine excretion; however, massive doses of vitamin B_6 produced no significant difference in cystathionine excretion. Other reported patients have been responsive to vitamin B_6 treatment. Enzyme studies on liver biopsy specimens from the patient and from normal controls revealed a defect of the cystathionase activity in the patient's liver; the conversion of serine to cystine was reduced, but not the conversion of serine to cystathionine. This patient is thought to have a new type of cystathioninuria without vitamin B_6 dependency. (18 refs.) *M. G. Conant.*

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1685 EFRON, MARY L., McPHERSON, THOMAS C., *SHIH, VIVIAN E., WELSH, C. FRANKLIN, & MacCREADY, ROBERT A. D-methioninuria due to DL-methionine ingestion: An artefact detected by a mass screening program for errors of amino acid metabolism. *American Journal of Diseases of Children,* 117(1):104-107, 1969.

The presence of *D*-methionine in the stools and urine of a normal premature infant was

observed only when the diet contained *DL*-methionine. Renal transport of *D*-methionine may be much less efficient than that of the *L*-enantiomorph, as has already been shown in the rat. Bacterial degradation of unabsorbed *D*-methionine produces methionine sulfoxide and α-hydroxybutyric acid, both of which were found in the stools and urine. *D*-methioninuria is an artifact which may occur in mass screening programs; therefore, physicians should be alerted to this possibility. (12 refs.) - *M. G. Conant.*

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1686 SEEGMILLER, J. EDWIN, FRIEDMANN, THEODORE, HARRISON, HAROLD E., WONG, VERNON, & SCHNEIDER, JERRY A. Cystinosis. *Annals of Internal Medicine*, 68(4):883-905, 1968.

Cystinosis, a recessively inherited disease with cystine crystals in the cornea, bone marrow, and reticuloendothelial cells, occurs in 2 forms. In adults, cystinosis is benign, and none of the systemic or renal manifestations of the infantile form are present. Cystine deposits in peripheral leukocytes, cornea, and bone marrow do occur. In children, the disease is invaribly fatal. The symptoms begin around 6 months of age and include the renal Fanconi syndrome, as well as some degree of defective pigmentation and photophobia. Peripheral retinopathy, crystalline opacities in the corneal stroma, and general pigmentation defects are predominant ophthalmological changes. The cystine concentration in cultured leukocytes and fibroblasts is 80 and 100 times normal, while the plasma concentration is normal. Neither a cystine-free diet started as early as 3 months, nor D-penicillamine treatment was able to prevent the deposition of intracellular cystine crystals and death. (57 refs.) *D. S. Plaut.*

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1687 FERNANDES, J., & VAN DE KAMER, J. H. Hexose and protein tolerance tests in children with liver glycogenosis caused by a deficiency of the debranching enzyme system. *Pediatrics*, 41(5):935-944, 1968.

Of 5 children (CA 1 to 9 yrs) who lacked the debranching enzyme system (maltotriosyltransferase plus 1,6-glucosidase), 3 have had repeated episodes of severe hypoglycemia, and 2 are MR. Both galactose and fructose tolerance tests revealed fluctuating serum sugar levels and increased lactate. When glucagon was given with glucose, the usual hyperglycemia and less pronounced lactate increases were noted. Oral administration of starch produced a more gradual and less severe hyperglycemia. Casein, egg albumin, and gliadin had little effect on blood sugar. Free fatty acids were measured in all tests and generally followed patterns normally seen in sugar tolerance tests. An immediate decrease in serum free fatty acids after protein ingestion was observed. Later the level generally rose to the pretest level. Starch is probably preferable to sugar in the diet of children with this disorder. (24 refs.) *D. S. Plaut.*

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1688 HOGAN, GWENDOLYN R., GUTMANN, LUDWIG, SCHMIDT, ROLAND, & GILBERT, ENID. Pompe's disease. *Neurology*, 894-900, 1969.

An infant with Pompe's disease (glycogen storage associated with deficiency of acid maltase) showed characteristic involvement of muscles, heart, and central nervous system. Clinically, the patient showed muscular hypertrophy with profound weakness, fasciculations, and cardiac failure. Electromyographic studies showed normal motor and sensory conduction but striking spontaneous muscular activity including fibrillation, positive waves, and bizarre high-frequency and myotonic discharges. At autopsy, there was marked glycogen storage in the heart and liver. Skeletal muscle showed complete loss of contractile elements with preservation of muscle fiber membranes. In the central nervous system, cortical and anterior horn cell neurons contained glycogen, but Purkinje cells were spared. Biochemical analysis of muscle showed absent acid maltase. Although most patients with Pompe's disease succumb in infancy as this patient did, a small proportion without cardiac involvement may survive into the second decade of life. (22 refs.) - *E. L. Rowan.*

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1689 DANCIS, JOSEPH, HUTZLER, JOEL, LYNFIELD, JOSHUA, & COX, RODY P. Absence of acid maltase in glycogenesis type 2 (Pompe's disease) in tissue culture. *American Journal of Diseases of Children*, 117(1):108-111, 1969.

Fibroblasts from normal Ss and from a patient with glycogenosis type 2 (Pompe's disease) were grown in tissue culture, and the presence of acid maltase was determined by a radioassay method based on the hydrolysis of maltose to glucose; by the presence of a neutral α-glucosidase; and by observing the extent of transglucosylation. The first method gives good results, showing acid maltase activity in normal Ss and none in the patient. This method also demonstrated acid maltase activity in fibroblasts grown from normal amniotic cells. A neutral glucosidase was present in both normal and Pompe's cells, so this method is useless in the detection of Pompe's disease. The transfer of glucose from maltose to glycogen (transglucosylation) was low in normal cells and even lower in the diseased cells; therefore, this is a less useful assay method than one based on hydrolytic activity. (15 refs.) - *M. G. Conant.*

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1690 FARQUHAR, J. W., & ISLES, T. E. Hypoglycaemia in newborn infants of normal and diabetic mothers. *South African Medical Journal*, 42(10):237-245, 1968.

A study of blood glucose levels (BGL) in 193 newborns of normal, and in 38 newborns of diabetic, mothers indicated that hypoglycemia is not unusual in either group. The hypoglycemia (BGL below 20 mg/100 ml) can be tolerated during the first few hours of an infant's life. BGL was measured in samples taken from either the umbilical vein or by heel stick (starting 15 min postpartum and continuing for 4 days thereafter) and was measured colorimetrically using the glucose oxidase method. The BGL varied widely; however, those infants of diabetic mothers (IDM) who were insulin dependent were more hypoglycemic. Postpartum, the differences in BGL between the 2 groups of infants became less marked. Three IDMs died; however, the BGL did not appear to be involved in the mortality. Other disorders in IDMs included respiratory distress, severe cyanosis, and asymptomatic hypoglycemia. The lower BGLs in IDMs could be attributed to maternal diet, oral hypoglycemic agents, or insulin treatment, and could be a valuable method of detecting latent maternal diabetes. Furthermore, although this study suggests that neonatal hypoglycemia is not necessarily associated with irreversible neurological damage, the protective mechanism involved should be investigated. Finally, while dextrose infusion has not unequivocally been shown to be of value, it can be used safely in treatment of sick IDMs. (24 refs.) - *E. Gaer.*

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1691 LARAYA-CUASAY, L. R., WOLFE, RICHARD, & *HUGHES, WALTER T. Acute pancreatitis and hypoglycemia. *Clinical Pediatrics*, 7(9):525-528, 1968.

In 3 children, hypoglycemia was associated with acute pancreatitis. Although hyperglycemia is usually found in acute pancreatitis, hypoglycemia can occur instead. Two of the children died from acute hemorrhagic pancreatitis; the third child is still alive, and presumably normal. All 3 children had hypoglycemia with coma and convulsions. Hypertonic dextrose stopped the seizures in one child, but in the other 2, convulsions persisted despite an elevation of blood sugar. All 3 children had had respiratory illnesses which preceded the onset of pancreatitis. There was no pancreatic obstruction in either autopsy. (27 refs.) - *F. J. McNulty.*

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1692 ELFENBEIN, I. BRUCE. Dystonic juvenile idiocy without amaurosis. A new syndrome: Light and electron microscopic observations of cerebrum. *Johns Hopkins Medical Journal*, 123(5):205-221, 1968.

Unique neuronal cytoplasmic bodies, observed only once before in atypical cerebral lipidosis, were seen in a 13-year-old Negro female who had progressive dementia beginning in late childhood, ataxia, dystonia, and epilepsy, but normal vision and optic fundi. Light microscopy examination of brain biopsy tissue revealed moderately distended foamy and granular neuronal perikarya while electron microscopy showed massive accumulations of neural polymorphous cytoplasmic bodies, most of which had an outer limiting membrane, a mid zone, and a small core. These

ultrastructural changes were virtually identical to those in another case of atypical cerebral lipidosis. Comparison of the ultrastructural changes in these 2 cases with those in neurolipidoses, especially juvenile amaurotic familial idiocy, showed striking differences in morphology of the polymorphous cytoplasmic bodies. These 2 cases may represent a new syndrome. (29 refs.) - *M. G. Conant.*

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1693 ELSNER, BORIS, & PRENSKY, ARTHUR L. Ultrastructure of rectal biopsies in juvenile amaurotic idiocy. *Neurology,* 19 (9):834-840, 1969.

Rectal biopsies were obtained from 2 patients (CA 11 and 19 yrs) with juvenile amaurotic idiocy (Batten-Spielmeyer-Vogt disease), and the nerve plexi were examined for evidence of morphologically abnormal neurons. Light microscopy demonstrated cytoplasmic vacuoles in most of the ganglion cells. On electron microscopic examination the cytoplasm was found to contain remarkably uniform inclusion bodies composed of concentric whorls of pale and dense membranes, having a "fingerprint" pattern. The material was not lipofuscin. In the older patient there was a limiting membrane around groups of inclusions. Similar inclusions have previously been described in cortical neurons in patients with this disorder. The rectal biopsy appears to be of potential diagnostic significance in disorders of neuronal degeneration and may provide a practical method of serially following the ultrastructural evolution of various neurolipidoses. (17 refs.) - *E. L. Rowan.*

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1694 OCKERMAN, P. A. Lysosomal enzymes in juvenile amaurotic idiocy. *Acta Paediatrica Scandinavica,* 57(6):537-539, 1968.

Tissue samples and blood plasma from Ss with juvenile amaurotic idiocy were found to have increased β-galactosidase, β-glucuronidase, β-acetyl-glucosaminidase, acid phosphatase, and α-fucosidase. A slight decrease of α-mannosidase was found in the plasma; however, other tissues had normal levels. These enzymic activities are similar to those in gargoylism and a newly described Hurler-like disorder, both of which are presumed due to a primary disorder of lysosome metabolism. Because of the similarities among these 3 disorders, further investigation of the role of lysosomes in juvenile amaurotic idiocy is recommended. (7 refs.) - *M. D. Nutt.*

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1695 TAMAI, YOICHI, & YAMAKAWA, TAMIO. Study on glucocerebroside in Tay-Sachs brain. *Japanese Journal of Experimental Medicine,* 39(1):85-93, 1969.

Brain tissue from a patient with Tay-Sachs disease was separated into glucokerasine, galactokerasine, and phrenosine fractions. The ratio of glucose to galactose in the kerasine fraction was 0.84:1 in the gray matter and 0.20:1 in the white matter of the Tay-Sachs brain. Glycolipids obtained from Tay-Sachs brain contained unusual amounts of ceramide dihexoside. The fatty acids of glucokerasine and of Tay-Sachs ganglioside consist of C_{16} and C_{18} fatty acids. In the acid hydrolysis of the sphingolipids, 3-*O*-methylsphingosine was obtained as an artifact. The similarities of distribution and of chemical components suggest a relationship of glucocerebroside and Tay-Sachs ganglioside. (16 refs.) - *F. J. McNulty.*

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1696 MEHRAEIN, P., & HAGER, H. The ultrastructure of the deposits in glial and mesenchymal cells in the brain in amaurotic idiocy. *German Medical Monthly,* 31(3):133-134, 1968.

Light and electron microscopy of brain biopsy specimens from a 4 1/2-year-old boy, who exhibited MR, physical retardation, and tonic-clonic fits, established the diagnosis of amaurotic idiocy (juvenile form). Light microscopy showed nerve cells which were distended and contained PAS-positive deposits, cerebellar atrophy with the granular layer almost gone, severely affected Purkinje cells (of those that remained), and advanced *status spongiosus* with protoplasmic astrocytes. Electron microscopy revealed not only the usual accumulation of material in the nerve-cell cytoplasm, but also accumulations in the astrocytes (protoplasmic and fibrillary) and

capillary endothelium. Deposits in the astrocytes were near the Golgi apparatus and had a pattern characterized by convoluted membranes. Deposits which had no discernible internal structure were present in cells of mesenchymal origin, especially the endothelial cells lining the capillaries. Apparently, the juvenile form of amaurotic idiocy is a generalized lipoidosis which involves the astroglia and mesenchymal cells of the brain. (3 refs.) - *A. Huffer.*

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1697 BLASS, JOHN P., AVIGAN, JOEL, & STEINBERG, DANIEL. α-Hydroxy fatty acids in hereditary ataxic polyneuritis (Refsum's disease). *Biochimica et Biophysica Acta,* 187(1):36-41, 1969.

The α-hydroxy fatty acid content of the skin in 2 patients with Refsum's disease was within the lower limits of normal when compared with 6 control Ss. A deficiency in long, straight chain α-hydroxy fatty acids was not found in patients with hereditary ataxic polyneuritis nor was there any relationship between phytanic acid storage and the levels of α-hydroxy fatty acids in nervous tissue or skin. The presence of normal amounts of straight chain hydroxy acids in patients with Refsum's disease who have a deficiency in the formation of α-hydroxyphytanic acid suggests that the α-hydroxylation of straight chain and branched chain fatty acids may be catalyzed by different enzyme systems. Evidence that phytol feeding increases the susceptibility of rats to experimental allergic encephalomyelitis suggests that phytanic acid accumulation may predispose to the development of neurologic disease. (31 refs.) *F. J. McNulty.*

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1698 PHILIPPART, M., MARTIN L., MARTIN, J. J., & MENKES, JOHN H. Niemann-Pick disease: Morphologic and biochemical studies in the visceral form with late central nervous system involvement (Crocker's group C). *Archives of Neurology,* 20(3):227-238, 1969.

Detailed lipid analysis was made on biopsy and autopsy material from a patient with Niemann-Pick disease group C, and compared with control tissue from a child with SMR; chemical and pathological studies were made one year apart on tissues from the brain, tonsils, and liver. Sphingomyelin was increased in the liver and tonsils. The total amount of gray matter lipids from the biopsy specimen was normal; however, at autopsy one year later, the sphingomyelins were reduced compared with the control values. This reduction paralleled the reduction of total lipids; however, phosphatidylethanolamine and phosphatidylcholine stayed at about the same level. Total white matter lipids and sphingomyelins also decreased in the autopsy specimen. Cerebrosides were reduced in the autopsy specimen to a greater extent than the other major lipid fractions in both the gray matter and the white matter. The amount of total white matter gangliosides was increased in both gray and white matter, and there were abnormal amounts of G_5 and G_6 gangliosides. A G_7 ganglioside was seen in both gray and white matter in the Niemann-Pick S, but not in the control. Neuronal ballooning may result from an accumulation of excessive salts and water in the diseased neuron, a conclusion which is supported by the increase in water content in gray matter which occurred during the last year of the patient's illness. (35 refs.) - *F. J. McNulty.*

Department of Pediatrics
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Los Angeles, California 90024

1699 OCKERMAN, PER-ARNE. Mannosidosis: Isolation of oligosaccharide storage material from brain. *Journal of Pediatrics,* 75(3):360-365, 1969.

A new storage disease named mannosidosis which has symptoms similar to those of Hurler's syndrome, and in which the α-mannosidase activity is low, the β-galactosidase is high, and there is high liver mannose, was described for the first time. Mannose is the major sugar found in the oligosaccharide material stored in the liver or the gray matter of the brain in this disease. The material was isolated by ion-exchange chromatography and gel filtration, and was found to contain large amounts of mannose and glucosamine, but only small amounts of serine, glycine, alanine, or other amino and uronic acids. This material was not homogeneous, and the molecular weight was not the same in all fractions. The abnormal storage material in mannosidosis is probably derived from glycoproteins. (17 refs.) - *F. J. McNulty.*

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1700 KJELLMAN, BENGT, GAMSTORP, INGRID, BRUN, ARNE, OCKERMAN, PER-ARNE, & PALMGREN, BERTIL. Mannosidosis: A clinical and histopathologic study. *Journal of Pediatrics*, 75(3):366-373, 1969.

A boy (CA 4 1/3 yrs) who was found to have a disease similar to mucopolysaccharidosis, juvenile amaurotic idiocy, or gargoylism, had histopathologic changes which did not quite fit these disorders. The changes included cerebellar atrophy, loss of myelin of the centrum semiovale with extensive gliosis, and complete dissolution of stored substances after exposure to weak solvents including water. The retinal changes of amaurotic idiocy were also absent. It was impossible to decide which clinical findings were caused directly by the disease and which symptoms were merely coincidental. Nor could the relationship between the histological abnormalities and the clinical course be defined. The central nervous system had extensive abnormalities which explain the boy's slow mental development and subsequent mental deterioration. Chemical analysis revealed large amounts of mannosides in the liver; this could have been caused by a defect of the enzyme α-mannosidase which led to a disturbance of the catabolism of mannose-containing substances, especially the glycoproteins. (16 refs.) - *F. J. McNulty.*

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1701 ANDERSON, JOHN M. Spongy degeneration in the white matter of the central nervous system in the newborn: Pathological findings in three infants, one with hyperglycinaemia. *Journal of Neurology, Neurosurgery and Psychiatry*, 32(4):328-337, 1969.

Spongy degeneration of myelinated white matter in brain and spinal cord was noted in 3 infants (1 with hyperglycinemia and 2 prematures) who died in the first month of life. Spongy change was confined to myelinated regions where nerve fibers were pushed aside by vacuoles whose walls stained for myelin. The nerve fibers themselves were intact. There was a poverty of myelin in such areas as compared with unaffected controls, but no products of myelin degeneration were identified. Myelin change was frequently accompanied by glial proliferation and the presence of glial cells containing neutral fats. This entity has been called van Bogaert and Bertrand's disease but the same features have been described in association with hereditary aminoacidurias, particularly maple syrup urine disease, hyperglycinemia, and tyrosinemia. It appears that spongy degeneration may be caused by a number of disease processes which affect the myelination of brain tissue. (32 refs.) - *E. L. Rowan.*

Department of Pathology
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Glasgow, N. 1, Scotland

1702 RAMPINI, S. Das Sanfilippo-Syndrom (polydystrophe Oligophrenie, HS-Mukopolysaccharidose): Bericht uber 8 Falle und Literaturubersicht (The Sanfilippo syndrome [Polydystrophic feeble-mindedness, HS-mucopolysaccharidosis]: A report of 8 cases and a review of the literature). *Helvetica Paediatrica Acta*, 24(1):55-91, 1969.

Eight observations of the syndrome of Sanfilippo are described, and 49 cases from the literature are reviewed. The main clinical feature is a progressive mental deterioration. The disease generally starts at the age of 1 1/2-3 years and the first symptoms are retardation or standstill of the psychomotor development. Subsequently, the stages of erethic oligophrenia and finally of severe dementia are reached. Compared to these symptoms, the physical findings are much less impressive. Slight gargoyle features without marked changes of the soft tissues and hepatomegaly are almost constant. Moderate contractures in the large joints and splenomegaly are less frequent. Corneal opacities are absent. A retardation of growth is found only after the tenth and twelfth year or later. As in Hurler's syndrome, abnormal inclusions in peripheral lymphocytes, and in bone marrow (plasmacellular reticulum cells and the reticulohistiocytic cells) are found. In the cells of the spinal fluid, similar inclusions are observed. The skeletal changes are reminiscent of those found in Hurler's syndrome but are much less marked. Typical X-ray findings are: thick calvarium with insufficient pneumatization; ovoid shape of lower thoracal and upper lumbar vertebrae; deformation of the iliac bones with flaring of the alae and hypoplasia of the lateral section of the acetabulum; and undermodeling of the metacarpals. The excretion of heparitin sulfate in the urine is markedly elevated. (63-item bibliog.) - *Journal summary.*

Universitatskinderklinik Zurich
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1703 WOLFF, O. H. Recent developments in the management and prognosis of some inborn errors of metabolism: Familial hyperlipidaemias. *Proceedings of the Royal Society of Medicine*, 60(11):Volume I:1147-1149, 1967.

Treatment for inborn errors of metabolism is more successful if started during early weeks or days of life. Disorders of serum lipoproteins are classified by the 4 lipoprotein fractions in the blood serum. Two deficiency disorders are A-betalipoproteinemia and Tangier disease. Both are rare conditions where the mutant gene is transmitted as an autosomal recessive. Familial hyperlipidemic conditions occur more often and 2 are associated with early development of coronary disease. Fat-induced hypertriglyceridemia is an inability to clear ingested fat and is also transmitted as an autosomal recessive. Treatment with a low-fat diet has proven to be effective. Familial hypercholesterolemia is transmitted as an autosomal dominant phenotype with a relatively high frequency. The homozygous condition has a poor prognosis; however, dietary treatment in the heterozygous condition is very effective. Treatment for carbohydrate-induced hypertriglyceridemia involves a low-carbohydrate, high-fat diet. (16 refs.) *B. Bradley.*

University of London
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1704 MILNE, M. D. Recent developments in the management and prognosis of some inborn errors of metabolism: The prognosis and management of renal tubular disorder. *Proceedings of the Royal Society of Medicine*, 60(11):Volume I:1149-1152, 1967.

An overview of renal tubular disorders in England indicates that early diagnosis is a major factor in treatment. Two major divisions included in hereditary renal tubular defects are specific inborn defects, and conditions where there is generalized tubular damage from an extra renal metabolic defect. Prognosis for both conditions varies since non-specific tubular damage may be progressive without treatment of cause. Cystinuria, Hartnup disease, and protinuria receive varied treatments, and Hartnup disease patients respond well to therapy. Conditions associated with generalized tubular damage include cystinosis, some types of Fanconi syndrome, renal glycosuria, and disorders of phosphate transport. Salt-losing renal lesions, renal tubular acidosis, and nephrogenic diabetes insipidus are also renal tubular disorders. (28 refs.) - *B. Bradley.*

Westminster Medical School
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1705 CLOW, CAROL, SCRIVER, CHARLES R., & DAVIES, ELUNED. Results of mass screening for hyperaminoacidemias in the newborn infant. *American Journal of Diseases of Children*, 117(1):48-53, 1969.

Blood amino acid levels were evaluated in 36,172 infants 5 to 7 days after birth and in 62% of them, 4 to 8 weeks later. Ten µl samples were drawn from a capillary tube containing heparinized blood and analyzed by a simple partition chromatographic technique. Staining was completed with an isatin-ninhydrin-lutidine mixture, Ehrlich's reagent, and Pauly reagent. Eighteen types of hyperaminoacidemias, with altered concentrations of tyrosine, phenylalanine, and methionine the most common, were detected in 316 infants; however, the conditions were transient in all but 6 children. Although the method is suitable for mass screening, it can not be automated readily. As a public health measure, this method should be augmented, since confirmatory tests fail in 50% of the patients with positive results. (19 refs.) - *M. G. Conant.*

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Montreal, Canada

1706 BARTSOCAS, CHRISTOS S., LEVY, HARVEY L., CRAWFORD, JOHN D., & THIER, SAMUEL O. A defect in intestinal amino acid transport in Lowe's syndrome. *American Journal of Diseases of Children*, 117(1):93-95, 1969.

The intestinal amino acid transport in 2 patients (CA 23.5 and 2.5 yrs) with Lowe's syndrome, both of whom showed generalized aminoaciduria, MR, hypotonia, and congenital glaucoma with cataracts, was examined. Incubation of jejunal mucosa specimens with ^{14}C-labeled glycine, *L*-lysine, and *L*-arginine, and calculation of the distribution ratios indicated that partial defects in lysine and arginine transport existed while glycine uptake was normal. Xanthurenic acid excretion following an oral load of tryptophan (100 mg/kg) was normal, suggesting that defective

amino acid transport in Lowe's syndrome is not caused by pyridoxine deficiency. (19 refs.) - *M. G. Conant.*

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Boston, Massachusetts 02114

1707 BLATTNER, RUSSELL J. Iminoaciduria. *Journal of Pediatrics*, 74(1):144-146, 1969.

The presence of amino acids, imino acids, or homogentisic acid in the urine is due to specific enzyme deficiencies that are basically hereditary. Clinically, patients with familial iminoaciduria may have MR, neurologic defects, congenital nerve deafness, and nephropathy. Inborn errors of metabolism include: alcaptonuria (darkening of the urine on exposure to air); hyperprolinemia; familial iminoaciduria; and renal aminoaciduria. Such inborn metabolic errors could be due to mutational changes in more than one gene complex. (14 refs.) - *F. J. McNulty.*

No address

1708 HIRSCH, W., MEX, ANNEMARIE, & VOGEL, F. Metabolic traits in mentally retarded children as compared with normal populations: Monoaminodicarboxylic acids and their half amides and total amino acids. *Journal of Mental Deficiency Research*, 13(2):130-142, 1969.

Monoaminodicarboxylic acids, their half amides, and total amino acid levels were studied in urine and serum samples of 489 MR children (CA 2 to 14 yrs; IQ 60 to 90) and controls; results indicated that the level of glutamic acid was increased and glutamine was reduced in the serum of the patients when compared with controls. The aspartic acid level in the serum was raised; whereas, asparagine and serine levels were reduced. This suggests that all monoaminodicarboxylic acids and their half amides may be similarly involved. Glycine and lysine were increased while alanine and arginine were decreased in the patients' serum compared to controls. (9 refs.) - *F. J. McNulty.*

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1709 THIER, SAMUEL O., & ALPERS, DAVID H. Disorders of intestinal transport of amino acids. *American Journal of Diseases of Children*, 117(1):13-23, 1969.

Defective intestinal transport of amino acids (diagnostically confirmed by use of oral loading tests, triple Lumen tubes, and *in vitro* studies) produces disorders affecting either transport mechanisms for specific amino acids or groups of amino acids or transport processes in general. Hartnup disease, tryptophan malabsorption, cystinuria, methionine malabsorption, and Joseph's syndrome are examples of the first type of defect and galactosemia, hereditary fructose intolerance, phenylketonuria, and Lowe's syndrome are examples of the second type. Defective intestinal amino acid transport is usually associated with renal aminoacidurias; however, at the tissue level, the defects may differ, as in cystinuria. MR is involved in Hartnup disease, methionine malabsorption, and Lowe's syndrome. Intestinal transport defects may be studied *in vivo* and *in vitro* since transporting epithelium is readily available. (51 refs.) - *M. G. Conant.*

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1710 SCRIVER, CHARLES R. Use of human genetic variation to study membrane transport of amino acids in kidney. *American Journal of Diseases of Children*, 117(1):4-12, 1969.

Inborn errors in the renal tubular absorption of amino acids are reviewed in relation to saturation of the amino acid transport mechanism, the structural similarity between amino acids, and genetic variations in humans. Thus, in cystinuria, not only is renal tubular resorption of cystine defective, but the resorption of the structurally similar amino acids lysine, ornithine, and arginine is also defective. This denotes that these amino acids share a common transport mechanism. Furthermore, when in normal individuals the plasma level of one of these amino acids is made artificially high, it competitively inhibits the resorption of one of the other amino acids. However, genetic studies have shown that a homozygous S defective in the resorption of cystine does not show as large an impairment as expected in the resorption of other amino acids; this indicates that there are secondary resorption sites. In general, more than one abnormal trait involving the transport of a single amino acid can occur in man and will affect the transport of another amino acid; this will be related

to the molecular similarity to the affected acid. Fanconi's syndrome and Hartnup disorder, both involving amino acid resorption, are often associated with MR. (58 refs.) *K. Jarka.*

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1711 FEIGIN, RALPH D. Blood and urine amino acid aberrations: Physiologic and pathologic changes in patients without inborn errors of amino acid metabolism. *American Journal of Diseases of Children,* 117(1):24-47, 1969.

Blood amino acid concentrations show an endogenous circadian periodicity (peak values at 1200 and 2000 hrs and minimum at 0400 hrs) which is independent of metabolic rate, exercise, excretion of urinary sodium, potassium, and water, dietary protein, and rhythmicity of blood elements. Amino acid analysis may aid in the diagnosis or therapy of several disorders including kwashiorkor, malnutrition, deficiency of vitamins C, D, or B_6, hyper- and hypothyroidism, hypopituitarism in children, functional parathyroid adenoma, acromegaly, hyperparathyroidism, liver necrosis, muscular dystrophy, hypophosphatasia, Paget's disease, fibrous dysplasia, Marfan's disease, rheumatoid arthritis, xeroderma pigmentosum, heavy metal poisoning, salicylate intoxication, and nitrobenzene poisoning. In addition, generalized aminoaciduria is associated with some inherited disorders, including adult Fanconi syndrome, cystinosis, Wilson's disease, Luder-Sheldon syndrome, and Scriver-Goldbloom-Roy syndrome. Recent investigation of blood amino acid changes may be among the earliest responses to infection. Changes are also induced by stress situations, such as thermal burn, shock, and the post-operative condition. (202 refs.) - *M. G. Conant.*

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1712 BERGE, T., BORGFORS, N., BRUN, A., & STUDNITZ, W. VON. Encephalopathy in combination with a new pattern of aminoaciduria. *Acta Paediatrica Scandinavica,* 58(1):73-79, 1969.

A male infant with a new aminoaciduria involving serine, alanine, and threonine, developed neuro-pathological symptoms and died at 38 days of age. The infant appeared normal at birth; at 6 hours after birth, he developed tachypnea and persistant peripheral cyanosis. Spontaneous activity of the patient was weak and during his first 4 days of life; there was an increasing tendency of his head to be drawn backward. Jaundice developed on the fifth day, and the increased bilirubin was treated with an exchange transfusion without complications. Within 2 days, the bilirubin rose again, then decreased on the sixteenth day. At autopsy, the kidney, liver, pancreas, adrenal glands, spleen, thymus, and thyroid gland were normal. The brain had focal lesions in the ventricular system which were characterized by astrocytosis, microglial proliferation, increased vascularity and loosening of the ground substance with deposition of large fat containing macrophages. An inborn enzyme defect may be responsible for this syndrome. (13 refs.) *F. J. McNulty.*

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1713 ADLER, RICHARD C., & *NYHAN, WILLIAM L. An oculocerebral syndrome with aminoaciduria and keratosis follicularis. *Journal of Pediatrics,* 75(3):436-442, 1969.

A 4-year-old Negro boy with keratosis follicularis spinulosa decalvans also had MR, arachnodactyly, extra digital creases, cataracts, glaucoma, and a generalized aminoaciduria. MR and aminoaciduria have not been found previously in association with keratosis follicularis spinulosa decalvans which is an uncommon disorder involving the skin and eyes. The disorder is transmitted as an X-linked trait and has not been noted in a Negro before. (14 refs.) - *F. J. McNulty.*

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1714 Screening for inborn errors of metabolism. *British Medical Journal,* 1 (5639):266-267, 1969.

There is some question as to the financial feasibility of screening for some types of metabolic errors. The World Health Organization report Number 401 states general principles of metabolic screening and gives

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specific screening procedures for some disorders. It also reviews the frequency, genetics, natural history, detection, and treatment of 3 main classes of diseases which result from metabolic errors. (1 ref.)
E. F. MacGregor.

1715 SWIATEK, KENNETH R., LUEBBEN, GERTRUDE, & CORNBLATH, MARVIN. Screening method for determining glucose in blood and cerebrospinal fluid. *American Journal of Diseases of Children,* 117(6):672-677, 1969.

A modification of the standard reagent strip (Dextrostix) technique which is used to estimate glucose was found suitable for screening the glucose concentration in the range of 40, 30, 20, and below 20 mg/100 ml in blood and cerebrospinal fluid in infants. Such a method can be used as a screening tool to detect hypoglycemia in premature infants, in infants of diabetic mothers, or in suspected cases of meningitis. All hypoglycemic conditions are potentially damaging to the central nervous system and remain recalcitrant to rapid screening tests. (11 refs.) - *L. S. Ho.*

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Chicago, Illinois 60608

1716 MATELES, RICHARD I., & TANNENBAUM, STEVEN R., eds. *Single-Cell Protein.* Cambridge, Massachusetts, Massachusetts Institute of Technology Press, 1968, 480 p., $16.00.

In order to feed the burgeoning world population, man must exploit both conventional and unconventional sources of protein. The International Conference on Single-Cell Protein considered the opportunities and difficulties inherent in developing single-cell proteins for human feeding. A high yield of high-quality protein from yeasts, bacteria, or algae is technologically possible, and the product is now being developed for animal feeding. Major questions of human palatability and toxicity have yet to be resolved. Marketing such a food supplement requires prior education as to the deleterious effects of protein malnutrition on physical and mental development and faces the omnipresent problem of getting the help to the areas where it is most needed--the overcrowded and underdeveloped areas of the world. The challenge of an impending world food crisis makes research and development of such a protein source mandatory and demands interdisciplinary cooperation in a fascinating area with many problems and few answers. (658 refs.)
E. L. Rawan.

CONTENTS: The World Food and Nutrition Crisis; The Status of Single-Cell Protein; Production of Single-Cell Protein; Use of New Protein Sources; Economic and Social Considerations.

1717 PLATT, B. S., & STEWART, R. J. C. Effects of protein-calorie deficiency on dogs. 2. Morphological changes in the nervous system. *Developmental Medicine and Child Neurology,* 11(2):174-192, 1969.

The histological findings in the central nervous system (CNS) of congenital and postnatally malnourished pups showed an increase in the number of astrocytic fibers from the surface of the brain; this is regarded as evidence of damage to neural tissue. The pups were born of mother dogs which were fed a low-protein diet, and they were compared with pups from mothers fed a high-protein diet. The pups from mothers fed the high-protein diet were then divided into 2 groups which were given either a high- or low-protein diet Pups from mothers fed the low-protein diet were similarly divided. Changes in the CNS were found in all protein-calorie deficient animals, whether born of well-fed or malnourished animals. The changes were greater in the congenital malnourished animals than in those of well-fed mothers. The proportion of neuroglial cells with large diameter nuclei was increased in the spinal cord. Microglial forms were more frequent in congenitally malnourished than in the deficient pups born of normal mothers. Most of the perineuronal cells were oligodendrocytes, but astrocytic fibers were present and were more numerous than expected. Photomicrographs from the anterior horn of the spinal cord of pups on a low-protein diet from malnourished mothers showed a loss of Nissl substance and an increased concentration of glial nuclei. There was reduction in the glutamic and succinic dehydrogenase activity in the cells of those animals born of normal mothers and who subsequently were given the deficient diets. The number of Purkinji cells was also reduced in some areas of the cerebellum. (38 refs.) - *F. J. McNulty.*

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1718 CHILDS, BARTON, & DER KALOUSTIAN, VAZKEN M. Genetic heterogeneity. *New England Journal of Medicine*, 279(23):1267-1274, 1968.

Enzyme activity may be affected by an alteration of a molecule, defective synthesis of a protein, or an inhibited reaction. When enzyme activity values are similar in related persons and dissimilar in non-relatives, allelism is a reasonable hypothesis; however, the possibility exists that genes at different loci are involved. Enzyme deficiencies are usually presumed to be autosomal recessive characteristics; indeed, in many cases affected persons have heterozygous parents or sibs. An abnormal molecule or reduction in the number of normal molecules may cause enzyme deficiencies; this could be caused by mutation in the structural genes of the peptide chain or in the regulatory genes. Differences in clinical expression and differences in expression in normal persons may represent a range of enzyme variation upon which the environment works to cause orderly development and a healthy individual. (83 refs.) *V. G. Votano.*

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1719 ANDERSON, ROBERT E., GRONDIN, CLAUDE, & AMPLATZ, KURT. The mitral valve in Marfan's syndrome. *Radiology*, 91(5):910-914, 1968.

Angiocardiography and case histories of a 6-year-old boy and 2 infants with Marfan's syndrome revealed that all had dilated aortic sinuses, left ventricular enlargement, and enlarged left atria. Two patients had prolapsing valve, enlarged, irregular mitral annulus, and 2+ mitral insufficiency. The other patient had 4+ mitral insufficiency. The differential diagnosis should consider that the valvular disease may be associated with rheumatic fever as well as Marfan's syndrome. (24 refs.) - *M. T. Lender.*

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1720 FIERRO-BENITEZ, RODRIGO, PENAFIEL, WILSON, DE GROOT, LESLIE J., & RAMIREZ, IGNACIO. Endemic goiter and endemic cretinism in the Andean region. *New England Journal of Medicine*, 280(6):296-302, 1969.

Analysis of iodide deficiency, thyroid function, altitude, neural and motor dysfunction and a variety of social and economic variables to ascertain the prevalence of endemic goiter in 8 rural Andean villages showed that as many as 54% of the population in certain villages had goiter, and neural and motor abnormalities characteristic of cretinism were present in up to 10% of the population. All villages with goiter had severe iodine deficiency. Intercurrent unidentified socioeconomic and biologic factors in the community may have modified the severity of the endemic. High altitude seemed to depress goiter formation. With increasing severity of the endemic, there was a rising prevalence of nodular goiter, and an increase in goiter in children, in goiter in men as compared to women, and in the average size of the glands. Endemic cretinism, deaf-mutism, and motor abnormalities were highly correlated with the severest intensity of endemic goiter. The cretins studied did not appear to be hypothyroid. (35 refs.) - *Journal abstract.*

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1721 O'MALLEY, BERT W., & KOHLER, PETER, O. Hypoparathyroidism. *Postgraduate Medicine*, 44(5):182-186, 1968.

In hypoparathyroidism, hypocalcemia is the primary symptom and the cause of most of the other abnormalities found. Patients may exhibit tetany, neurological symptoms (seizures, MR, and papilledema), and pathological changes in skin, hair, nails, and lenses. Metabolic cataracts are found in 50% of the patients with idiopathic hypoparathyroidism, in 25% of those with postoperative hypoparathyroidism, and in 35% of those with pseudohypoparathyroidism. The EEG is usually abnormal and shows a tendency toward α-rhythm disappearance, an increase of amplitude and consistency of β rhythm, clusters of slow waves, and small spikes. Electrocardiographic abnormalities include prolongation of the QT and shortening of the PR intervals. Decreased contractility of the heart is also noted. *Candida* infection and chronic diarrhea are found in some patients. (No refs.) - *L. S. Ho.*

Endocrinology Branch of the
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1722 O'MALLEY, BERT W., & KOHLER, PETER O. Hypoparathyroidism. *Postgraduate Medicine*, 44(6):77-81, 1968.

Three case histories of hypoparathyroidism are presented: a 54-year-old woman who was thyroidectomized 12 years before, a 65-year-old female dwarf with idiopathic hypoparathyroidism; and a 44-year-old man with pseudohypoparathyroidism. Three unusual features in the case of postoperative hypoparathyroidism were a monilial involvement of the nails, pharynx, and vagina; dermatitis; and absent hypocalcemic symptoms (despite marked hypocalcemia and hypophosphatemia). The female dwarf had peculiarly long arms and short legs, in contrast to the normal limb proportions usually found in pseudohypoparathyroidism dwarfism. The third patient denied any symptoms associated with hypocalcemia, with the possible exception of paresthesia in the left arm and leg. This patient manifested some physical symptoms of pseudohypoparathyroidism; however, he was not short nor did he have the characteristic metacarpal or metatarsal dyschondroplasia of this disorder. (No refs.) - *L. S. Ho.*

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1723 KOGUT, MAURICE D., DONNELL, GEORGE N., LING, SHUN M., & FRASIER, S. DOUGLAS. Hypopituitarism and diabetes mellitus: Effect of human growth hormone. *Pediatrics*, 41(5): 905-916, 1968.

A child (CA 44 mos) with retarded developmental milestones was found to have diabetes mellitus coexistent with hypopituitarism. At 15 months of age, he was found to be hypothyroid, and thyroid extract was given. At 17 months, a glucose tolerance test was performed, and he was found to be diabetic. He exhibited random hypoglycemia glycosuria, but not acetonuria. Glucagon produced a normal blood glucose level while leucine, tolbutamide, and insulin caused marked hypoglycemia. At 20 months, hypothyroidism and insufficient corticotrophin reserve was found. Because of the difficulty of regulating the blood sugar, he was treated with oral tolbutamide and glucagon; however, this treatment did not give adequate control. Insulin was started, but the blood sugar level continued to fluctuate. Since growth hormone blood levels were found to be low, it was added to the regimen at 36 months of age, and a 5-inch growth and a weight gain of over 11 pounds were produced. Hypoglycemia, the initial presenting symptom in this S, is often an early sign of diabetes mellitus, and in this S, the diabetes appeared to be due to an excess of insulin. Hypopituitarism was suggested by the growth retardation, the blood sugar abnormalities, and the abnormal activities of trophic and growth hormones. Since insulin potentiates growth hormone activity, the marked growth in this S may have been due to synergism. Finally, the occurrence of diabetes mellitus in a S with hypopituitarism opens the question of the role of the anterior pituitary and growth hormone in the pathogenesis of diabetes. (59 refs.) - *E. Gaer.*

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1724 FRATANTONI, JOSEPH C., NEUFELD, ELIZABETH F., UHLENDORF, B. WILLIAM, & JACOBSON, CECIL B. Intrauterine diagnosis of the Hurler and Hunter syndromes. *New England Journal of Medicine*, 280(13):686-688, 1969.

Prenatal diagnosis was accomplished for 2 women who had previously borne children affected with genetic disorders of mucopolysaccharide metabolism--the Hurler syndrome (autosomal recessive) in one case and the Hunter syndrome (X-linked recessive) in the other. Amniotic fluid, which contains fetal cells, was obtained by transabdominal amniocentesis. After culture *in vitro*, the amniotic fluid cells displayed 2 characteristics (a distinctive kinetic pattern of radioactive sulfate incorporation into mucopolysaccharide and metachromatic staining with toluidine blue) that are also exhibited by cultured skin fibroblasts derived from patients with these metabolic disorders. (10 refs.) *Journal abstract.*

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1725 GERICH, JOHN E. Hunter's syndrome: Beta-galactosidase deficiency in skin. *New England Journal of Medicine*, 280(15):799-802, 1969.

Deficient activity of β-galactosidase was found in the skin of 2 siblings with Hunter's syndrome and their mother, a carrier of the sex-linked disorder. Twenty-five and 33% of the normal mean value for β-galactosidase activity were observed in skin homogenates from the probands, and 54% was present in that of the mother. The average plasma β-galactosidase activity in the probands and in their mother was 1 7/10 and 1 4/10 times normal control values, respectively. Skin

and plasma β-*N*-acetylglucosaminidase in the probands was elevated 3 and 1 3/10 times mean control values, respectively. Normal values for this enzyme were found in the skin and plasma of the mother. Current evidence suggests that the abnormal accumulation of mucopolysaccharides in Hunter's syndrome is due to a defect in the degradation of these substances. The results of this study support the hypothesis that a deficiency of β-galactosidase activity or a cofactor necessary for its action is responsible. (31 refs.) - *Journal abstract.*

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Washington, D, C. 20007

1726 HUGUENIN, M., GODARD, C., FERRIER, P. E., & BAMATTER, F. Two different mutations within the same sibship: Thanotophoric dwarfism and Ullrich-Feichtiger syndrome. *Helvetica Paediatrica Acta*, 24(3):239-245, 1969.

Thanatophoric dwarfism is a recently isolated form of chondrodystrophy which is to be distinguished from classical achondroplasia. An example of this disease is recorded here. The affected infant was the offspring of young non-consanguineous parents who, 2 years earlier, had produced another severely malformed baby. The disorder in the latter was Ullrich-Feichtiger syndrome, which does not seem to be related to thanotophoric dwarfism. The occurrence of 2 different, rare but well identified congenital malformation syndromes in the same sibship is striking and is not believed to be due to chance alone. The suggestion is made that the hereditary material of some individuals is particularly prone to undergo mutations. (9 refs.) - *Journal summary.*

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1727 ROBINOW, MEINHARD, *SILVERMAN, FREDERIC N., & SMITH, HUGO D. A newly recognized dwarfing syndrome. *American Journal of Diseases of Children*, 117(6):645-651, 1969.

Four members of one family and 5 additional cases in previous generations illustrate a new dwarfing syndrome with peculiar facies, irregular dentition, and normal radiographic features. The mother of 3 children with this syndrome also has the same condition, and the grandmother is suspect. Indications are that this syndrome has passed through 6 generations without skipping, and 5 affected persons were parents. Of these 5 individuals, there were 8 affected children (4 males and 4 females) as well as 4 nonaffected children (2 males and 2 females), which indicates that an autosomal dominant gene with high penetrance, and uniform expression is involved. The clinical features of this syndrome appear at birth, do not increase, and have no specific effect on health. There were no biochemical or chromosomal abnormalities. Developmental stages appear fairly normal; although there is no psychological test data available. (5 refs.) - *B. Bradley.*

*Children's Hospital
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Cincinnati, Ohio 45229

1728 LORIDAN, LILIANE, & SENIOR, BORIS. Cushing's syndrome in infancy. *Journal of Pediatrics*, 75(3):349-359, 1969.

Four children (CA 3 mos to 3 yrs) with Cushing's syndrome, a rare condition which may be congenital and is associated with multiple anomalies in nearly 50% of cases, had an increase in 17-hydroxycorticosteroids excreted (all 4 patients), leukocytosis with lymphopenia and eosinopenia (2), a diabetic glucose tolerance test (3), and a low protein-bound iodine concentration (2). X-rays demonstrated retarded bone age in all 4, severe osteoporosis in 3, and absence of a thymic shadow in all 4. Clinically, the 4 patients exhibited puffy cheeks, buffalo hump, excessive weight gain and hypertension; although in 2 cases severe renal failure made the hypertension questionably significant. Two patients had multiple anomalies of the genito-urinary system, club feet, and other skeletal abnormalities, and one S was MR. (46 refs.) - *C. A. Rizvi.*

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1729 CLEVENGER, LEMAR J., DROSSMAN, L. MARLYN, SHAFFER, CAROLYN, & WYATT, JANET. Malnutrition and mental retardation: An annotated bibliography. *Mental Retardation Abstracts*, 7(1):1-24, 1970.

An annotated bibliography of selected literature from 1959 which deals with the relationship between undernutrition and mental development is presented. Documents relating to specific dietary deficiencies, metabolic problems, and physical retardation are not

included. The items are arranged in broad sections which cover epidemiology, etiology, diagnosis, clinical effects, effects in animals, clinical treatment and prognosis, treatment results in animals, and prevention. In all, there are 211 annotated citations, and 13 unannotated references in an addendum. (224 refs.) - *M. D. Nutt.*

Mental Retardation Abstracts
1601 West Broad Street
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1730 SCRIMSHAW, NEVIN S., & GORDON, JOHN E., eds. *Malnutrition, Learning, and Behavior.* Cambridge, Massachusetts, Massachusetts Institute of Technology Press, 1968, 566 p. $12.50.

Retarded physical growth and development due to protein deficiency is widespread in developing countries, in the urban slums, and in rural poverty areas of developed countries; 2/3 of the world's children are estimated to be malnourished. The relationship between nutritional state and mental development is extremely complex and involves the interaction of such variables as social conditions, infection, cultural factors, nutrition, and heredity. Malnutrition and sensory deprivation or lack of psychological and social stimuli have produced the same results in experimental animals. Experiments in this area with human populations raise questions as to proper population sample, age group, length of study, suitable tests for measuring the intelligence of children in different cultures at different ages, adequate controls, and test interpretation. There is a need for better methods of identifying the nutritional status of children, and additional interdisciplinary research should be done in this area. The papers collected here should interest those in government as well as professionals in the fields of pediatrics, biological sciences, genetics, sociology, anthropology, psychology, and nutrition. (736 refs.) - *M. G. Conant.*

CONTENTS: Philosophical and Pragmatic Objectives of the Conference; Malnutrition and Retarded Growth in Man; Biological Factors in Central Nervous System Development, Effects of Malnutrition on Learning and Behavior in Experimental Animals; Malnutrition, Learning and Behavior in Children; Factors of the Social Environment Affecting Learning and Behavior; The Field Study of Malnutrition, Learning and Behavior.

1731 THOMSON, ANGUS M. Historical perspectives of nutrition, reproduction, and growth. In: Scrimshaw, Nevin S., & Gordon, John E., eds. *Malnutrition, Learning, and Behavior.* Cambridge, Massachusetts, Massachusetts Institute of Technology Press, 1968, p. 17-28.

Evidence obtained during famines when maternal diet was severely restricted indicates that undernutrition has a significant influence on human reproduction only at near-starvation levels and the effect is usually infertility. The physiological adjustments made during pregnancy give the fetus the optimum chance of normal growth even under stress; however, the nutritional state of the mother at the time of conception and organogenesis is most important for the fetus. Growth and development show sharp setbacks after 6 months of age in developing countries because infection, irregular and poor feeding, loss of passive immunity, and insufficiency of breast milk as the sole food all begin to take their toll at this age. Preventive medicine in developing countries should be re-evaluated, and the idea that nutritional diseases must be remedied with nutritional measures should be abandoned. (28 refs.) *M. G. Conant.*

1732 BEHAR, MOISES. Prevalence of malnutrition among preschool children of developing countries. In: Scrimshaw, Nevin S., & Gordon, John E., eds. *Malnutrition, Learning, and Behavior.* Cambridge, Massachusetts, Massachusetts Institute of Technology Press, 1968, p. 30-41.

The dietary patterns and growth of 80 children in a rural Mayan Indian community in Guatemala were followed from birth to approximately 3 years of age, and the findings were in agreement with those from other developing countries. Breast feeding lasts until the second or third year of life, supplementary solids are introduced late, and in insufficient quantity, and supplementary foods are selected from the family diet on the basis of what is "safest" for the child. In addition to the low protein diet, another factor in malnutrition is the high prevalence of infectious diseases and the synergistic interaction of nutrition and infection. The incidence of diarrheal disease starts to rise at age 3 to 6 months (at the time passive immunity diminishes) and reaches a peak as the weaning period ends. The number of persons affected with malnutrition in developing countries is growing at a faster rate than the food supply. (15 refs.) *M. G. Conant.*

1733 COLLIS, W. R. F., & JANES, MARGARET. Multifactorial causation of malnutrition and retarded growth and development. In: Scrimshaw, Nevin S., & Gordon, John E., eds. *Malnutrition, Learning, and Behavior*. Cambridge, Massachusetts, Massachusetts Institute of Technology Press, 1968, p. 55-71.

Studies of Nigerian children from birth showed that the growth of children from lower- and upper-income families compare satisfactorily with the United Kingdom standards for the first 3 to 4 months of life, after which the growth rate of the lower-income children fell while growth of children from upper-income families progressed satisfactorily. Children who had a sufficient calorie-protein intake, but who were exposed to numerous communicable diseases in their early years subsequently caught up in growth with the optimum group, while children who received insufficient calories and proteins did not. Lack of money to buy necessary food was the largest single etiological factor in malnutrition among urban children, while ignorance was the biggest factor in rural populations. Nutrition is a primary influence in physical and mental development, and is, itself, influenced by certain social conditions, including poverty, ignorance, poor hygiene, overcrowding, parasitic diseases, and superstitions. (18 refs.) - *M. G. Conant.*

1734 STEWART, R. J. C., & PLATT, B. S. Nervous system damage in experimental protein-calorie deficiency. In: Scrimshaw, Nevin S., & Gordon, John E., eds. *Malnutrition, Learning, and Behavior*. Cambridge, Massachusetts, Massachusetts Institute of Technology Press, 1968, p. 168-180.

Beagle puppies maintained on protein-calorie deficient diets since weaning produced congenitally malnourished pups which were significantly smaller and more immature than pups of normal mothers. When these pups were maintained on low-protein diets, they developed tremors and athetoid movements which increased in intensity until the twelfth week of age, when a rapid improvement in their condition occurred. Malnourished dogs from normal mothers showed restricted weight gain and less intense tremors which receded, but rarely disappeared after 4 to 5 months of age. The EEG patterns of malnourished dogs and pigs were abnormal, even after institution of a high-protein diet, and both showed marked morphological changes in the anterior horns of the spinal cord and an increased number of perineuronal oligodendrocytes and astrocytic fibers. Deficient pigs also had edema of the brain. Most of the changes found have been reversible with no tract degeneration and no necrosis. (13 refs.) - *M. G. Conant.*

1735 JELLIFFE, DERRICK B., & JELLIFFE, E. F. PATRICIA. Field assessment of dietary intake and nutritional status. In: Scrimshaw, Nevin S., & Gordon, John E., eds. *Malnutrition, Learning, and Behavior*. Cambridge, Massachusetts, Massachusetts Institute of Technology Press, 1968, p. 397-408.

The 2 principal forms of field study for evaluation of the nutritional state of populations are the short-term, cross-sectional assessment of prevalence and the long-term prospective measurement of incidence. Although the former is most suited to nutritional studies, the latter is the required form to study the relationship of malnutrition to mental development. The 3 methods used in the direct assessment of nutritional status are clinical, biochemical, and anthropometric. Etiological factors involved in the assessment include cultural dietary patterns, attitude toward disease, lack of association of nutrition with disease, mother-child contact, and psychologically traumatizing episodes. Much more interdisciplinary investigation is needed to elucidate the interrelationship between malnutrition, learning, and behavior. (8 refs.) - *M. G. Conant.*

1736 ADAMS, RICHARD N. Cultural aspects of infant malnutrition and mental development. In: Scrimshaw, Nevin S., & Gordon, John E., eds. *Malnutrition, Learning, and Behavior*. Cambridge, Massachusetts, Massachusetts Institute of Technology Press, 1968, p. 465-474.

The study of the relationship between infant malnutrition and mental development should be approached within a broad framework which includes the whole adaptive cycle. The experience of an individual should be followed until patterns of behavior and mental capacity become fixed, at adulthood. In this way, the multitude of factors which affect development can be assessed for their relative importance. The most important variables which affect development appear to be heredity, nutrition, infection, and social factors Cultural factors play a role in the differentiation of independent and dependent variables, and independent variables affect growth and development at a later point in time than dependent variables. (10 refs.) *M. G. Conant.*

1737 ENDRES, JEANNETTE, & THAMAN, AUDREY. New perspectives in applied nutrition for mentally retarded children. *Mental Retardation/MR*, 7(1):44-47, 1969.

A nutritionally adequate diet for MR children has important implications psychologically and socially, as well as physically. SMR children (CA 8 to 12 yrs) who were ambulatory and toilet trained, were placed in a special dietary program. Case histories provided medical, psychological, and speech evaluations as well as a social history and a report on home management problems. Each child was evaluated nutritionally and a nutritionally adequate diet with a wide variety of foods and of feeding situations was planned for each child. Parental involvement in the feeding program was promoted to aid in improving the self-concept of the MR and to stimulate the child to make further advances. Equipment to facilitate meal service and feeding was chosen, and accessories necessary to make an attractively set table were used routinely. Because of the special meal service and the variety of foods served, these children received social stimulation and an opportunity for effective social functioning in addition to gaining skill at a necessary task. (10 refs.) - *B. Parker.*

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1738 KING, CHARLES GLEN. Frontiers in nutrition: Research, education, and action. *Journal of the American Dietetic Association*, 53(3):222-225, 1968.

While the study of nutrition is primarily concerned with inner functions of the body, current work is focusing on the environment of all living organisms. In the past, trace elements (copper, cobalt, manganese) were studied as poisons; however, they are now studied as to their roles in deficiency disorders. The present rise in world population has necessitated investigations into the use of plant foods and natural resources in more efficient ways and to educate the public in diet management. The education of pregnant women in the merits of balanced diets would aid social and economic progress and would aid in the control of the mortality rate of infants as well as the mental and neurological development of those who survive. Nutrient imbalances are more prevalent among lower income groups which also have a higher incidence of diabetes, atherosclerosis, liver and kidney failure, cancer, and coronary arrest. Current studies on fat metabolism are elucidating the factors that control: the appetite; the tendency toward obesity and diabetes in the genetic sense; and the eating habits in childhood which are carried into adulthood. (2 refs.) - *G. Trakas.*

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1739 Nature, nurture, and stature. *Journal of the American Medical Association*, 209(11):1712-1713, 1969.

Undernutrition, not emotional deprivation, is often responsible for the failure to thrive syndrome in infants and children. Hospitalization or supervised home care will very often result in a rapid acceleration of physical and mental development simply because the children are given an increased caloric intake. (No refs.) - *V. G. Votano.*

1740 MATSUDA, ICHIRO, SUGAI, MOTONOBU, & OHSAWA, TADASHI. Laboratory findings in a child with pseudo-vitamin D deficiency rickets. *Helvetica Paediatrica Acta*, 24(3): 329-336, 1969.

Pseudo-vitamin D deficiency rickets in an 11-year-old boy of Japanese extraction has been described. The case had, in addition to the usual findings of the disease, secondary hyperparathyroidism, reduced sensitivity of the renal tubules to the exogeneous parathyroid hormone, reduced calcium absorption from the intestine, and decreased activity of intestinal lactase. Treatment with 7,000,000 U vitamin D resulted in a normalization of alkaline phosphatase activity and minerals level in the serum, and reversal of rachitic changes of the skeleton. The treatment further induced improvement of calcium absorption from the intestine and favorable response of serum calcium level to parathormone infusion. However, no improvement of reduced sensitivity of renal tubules to parathyroid hormone was observed even after the treatment. (14 refs.) - *Journal summary.*

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1741 SEELIG, MILDRED S. Vitamin D and cardiovascular, renal, and brain damage in infancy and childhood. *Annals of the New York Academy of Sciences.* 147(15):537-582, 1969.

Histopathological features of supravavular aortic stenosis, hypercalcemia, renal acidosis and arteriosclerosis of infancy and childhood are strikingly similar to that seen in experimental hypervitaminosis D. MR and characteristic facies associated with supravavular aortic stenosis are also observed in survivors of infantile hypercalcemia. Reactivity to vitamin D varies in different racial groups; faired-skinned children have a greater susceptibility to infantile renal acidosis, hypercalcemia, and supravavular aortic stenosis, while Negro infants more easily contract rickets. Milk enhanced vitamin D activity 3 to 10 times more than oil. Daily doses of 400 units in oil is prophylactic for the group most susceptible to rickets but far exceeds the safety margin for less susceptible groups. The prophylactic amounts of vitamin D should, therefore, be carefully re-examined. (160 refs.) - *L. S. Ho.*

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New growths

1742 LUKASH, WILLIAM M., & JOHNSON, R. B. Gastrointestinal neoplasms in von Recklinghausen's disease. *Southern Medical Journal,* 62(10):1237-1239, 1969.

Additional clinical case data relating to von Recklinghausen's disease indicates the presence of gastrointestinal neoplasms containing significant amounts of smooth muscle. Two of the 3 cases reported had leiomyomas rather than the expected neurofibromas. Diagnostic studies should include X-ray contrast studies of the small intestine. This disease may be a hereditary "hamartomatous" disorder with overgrowth of nerve sheath tissue and other tissue "constituents" which produce the characteristic malformations. Diagnostic procedures for this condition should be applied if 6 *cafe au lait* spots larger than 1.5 cm in diameter and axillary freckling are present whether or not there are other symptoms of the disorder. (6 refs.) - *B. Bradley.*

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1743 CORKILL, A. G. L., & ROSS, C. F. A case of neurofibromatosis complicated by medulloblastoma, neurogenic sarcoma, and radiation-induced carcinoma of thyroid. *Journal of Neurology, Neurosurgery and Psychiatry,* 32(1):43-47, 1969.

A boy with a family history of von Recklinghausen's neurofibromatosis manifested 2 forms of spontaneous and one form of induced neoplasia. When the patient was 8, a right cerebellar medulloblastoma was partially excised and irradiated. Except for a dyslexia, the boy did well until age 17 when multiple neurologic signs developed. Several operations were performed to remove neurofibromata compressing the spinal cord and mediastinum. At autopsy, the nerve tumors ranged from benign to anaplastic. Edematous and hemorrhagic sarcomatous growth destroyed vertebrae and infiltrated muscle and connective tissue in the neck and spinal column. The thyroid contained a carcinoma which had metastasized to a nerve tumor mass in the right hemithorax. Sarcomatous change is frequent (13% in one study) in neurofibromas, and associated gliomas of the nervous system have been described. Radiation which cured the medulloblastoma probably induced malignant change in the thyroid. (14 refs.) - *E. L. Rowan.*

Department of Neurosurgery
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Tripoli, Libya

1744 GRIFFIN, MAX E., & *BOLANDE, ROBERT P. Familial neuroblastoma with regression and maturation to ganglioneurofibroma. *Pediatrics,* 43(3):377-382, 1969.

Two sisters with histologically demonstrable congenital disseminated neuroblastoma subsequently showed maturation of the tumors to benign ganglioneuroma. One girl received X-ray therapy and subsequently died of persistent anemia and leukopenia. The other received no treatment and was alive and well at age 13 years. There was evidence of both neuroblastoma cytolysis with fibrocalcific

residua and maturation to well collagenized neurofibroma-like lesions with rare degenerate ganglia. Familial neuroblastoma is rare (only 6 reported) but this sibship may demonstrate a link between this tumor and the more common familial neurofibromatosis. (13 refs.) *E. L. Rowan.*

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1745 SCHURR, PETER H. Subdural haematomas and effusions in infancy. *Developmental Medicine and Child Neurology*, 11(1):108-111, 1969.

Subdural hematomas and effusions occur fairly commonly in infancy and should be sought for, as they represent a preventable cause of MR. Trauma and infection represent the most common causes, and vomiting and convulsions are the most frequent symptoms. Retinal hemorrhage in infancy is practically pathognomonic for subdural hematoma. Diagnosis is made by subdural tap, and repeated aspiration of the high protein fluid may be curative in some cases. Persistent fluid may require burr holes and removal of the membranes over the sac or a shunt to the pleural space. Despite treatment, however, the most important factor in prognosis appears to be the antecedent event leading to the fluid accumulation. (7 refs.) - *E. L. Rowan.*

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1746 GARFIELD, JOHN. Management of supratentorial intracranial abscess: A review of 200 cases. *British Medical Journal*, 2 (5648):7-11, 1969.

A comparison of 100 cases of intracranial abscess diagnosed between 1951 and 1957, and 100 cases diagnosed between 1962 and 1967 failed to show any improvement in the mortality rate (37% in the first group and 42% in the second). This was attributed to continuing inaccurate localization and inadequate treatment. There was no change in the site of abcess, etiology, level of consciousness on admission, age, or length of neurological history. Localization is necessary for successful aspiration of an abcess. Carotid arteriography is valuable but only if the abcess is within the temporal lobe. Ventriculography and EEG are less useful. Recent developments in the technique of brain scanning will probably establish this as the method of choice for localization. The optimal treatment regimen is daily aspiration with local and systemic antibiotics. Penicillin in very high dosage is still the drug of choice. Lumbar puncture to rule out meningitis is contraindicated in the presence of convulsions, hemispheric signs, or papilledema. (18 refs.) *E. L. Rowan.*

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Southampton, England

1747 McCORMICK, WILLIAM F., HARDMAN, JOHN M., & BOULTER, THOMAS R. Vascular malformations ("angiomas") of the brain with special reference to those occurring in the posterior fossa. *Journal of Neurosurgery*, 28(3):241-251, 1968.

Pathological features of 164 posterior fossa angiomas (PFA), 346 cerebral angiomas, and 2 dural angiomas were obtained and compared. The morphological types of the 164 PFA were: arteriovenous (A-V) malformations (70 cases); telangiectasis (38); venous angiomas (31); cavernous angiomas (21); and varices (4). A-V was the main type of malformation in the cerebellum, whereas telangiectasis predominated in the brain stem. Of the 346 cerebral angiomas, 217 were A-V, 59 cavernous, 46 venous, 22 telangiectasis, and 2 varices. Hemorrhage was most common in A-V malformations; of 51 bleeding PFA, 42 were A-V type. Telangiectasis, the most innocuous type, was frequently found in the basis pontis and was not significantly associated with hemorrhage. Calcification and bone formation were found in 12 PFA and 2 PFA cases, respectively, whereas 64 cerebral angiomas showed calcification and 7 showed bone formation. Hydrocephalus was found in 10 of 157 PFA cases. In PFA, 63 of 149 Ss were over 50 years old, whereas no significant relation of age and occurrence of supratentorial and infratentorial angiomas could be observed. (46 refs.) *L. S. Ho.*

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1748 SOLOMON, GAIL E., FRANK, DONALD J., GOLD, ARNOLD P. "Failure to thrive" of cerebral etiology. *New England Journal of Medicine*, 280(14):769-770, 1969.

A failure-to-thrive syndrome was produced by an intracranial tumor of the posterior fossa which did not involve the diencephalon nor increased intracranial pressure. The patient was a 7-year-old boy with a 6-year history of anorexia, vomiting, and failure to grow who was emaciated and irritable and whose height and weight were 4 standard deviations below the mean for his age. X-ray examination disclosed a bone age of 4 1/2 years. Neurological examination was normal except for minimal cerebellar deficit. A pneumoencephalogram showed a mass in the foramen magnum. At surgery, a ganglioglioma was removed, and radiotherapy to the brainstem was given. Follow-up examination at 4 months revealed an asymptomatic boy with a marked weight and height gain. (4 refs.) - *W. J. Klein.*

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1749 MISHKIN, FRED, & TRUKSA, JOHN. The diagnosis of intracranial cysts by means of the brain scan. *Radiology*, 90(4):740-746, 1968.

Although most reports on brain scanning deal with an increased activity in the areas of neoplasm, inflammatory changes, hematoma, surgery, or vascular abnormalities, 5 cases are reported of decreased activity secondary to avascular lesions such as cysts. A vertex view may demonstrate asymmetrical enlargement of the skull, an area of decreased activity, or a shift of the sagittal sinus away from the cyst. Although differentiation among arachnoid, porencephalic and other cerebral cysts is not possible with this technique; nevertheless, it offers a simple diagnostic tool in the investigation of such problems as excessive head growth in infancy. (5 refs.) *E. L. Rowan.*

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Prenatal influence

1750 ROBOZ, P., & PITT, D. Studies on 782 cases of mental deficiency. Part III. *Australian Paediatric Journal*, 5(1):38-53, 1969.

Cranial abnormalities are common in MR children, and causes can be prenatal, perinatal, or postnatal. Dyscrania and malformations were studied in 126 MRs to determine possible prenatal causes. Criteria indicative of prenatal cerebral damage of unknown origin are needed since there are no clinical signs for these abnormalities; the presence of one major or 2 minor anomalies was regarded as such. The shape of the head was used as an additional diagnostic aid, and was of diagnostic value in about 1/2 of the Ss. Cranial malformations associated with facial distortions and recognizable as a type, and other features difficult to describe give the appearance of a prenatal look. Although distribution by age and birth is the same as the general population, there is an increased rate of threatened abortions, prolonged labor, and multiple and premature births in the study group. Of 64 Ss with neurological symptoms, 70% were completely dependent while 30% were only moderately or mildly handicapped. Of the other 62 Ss, 31 were fairly well adjusted 4 were withdrawn, 5 were erratic, 3 were overactive, 9 were unresponsive, 3 were destructive, 2 showed psychotic features, 1 was psychotic, and 4 were not assessed. There were 143 Ss with Down's syndrome, with a high incidence in the lower ages, probably due to early admission. As with dyscrania, there was a high incidence of abnormal pregnancies, threatened abortions, premature births and severe neonatal symptoms in these Ss. A small head was found in 91% of the mongoloid Ss, although the abnormality was mild or moderate in 87%. Neurological symptoms were present in 6 Ss. Visual defects, hypogenitalism and congenital cardiac defects are major regular malformations in mongoloids, and of 139 Ss assessed, 77.6% were moderately and 22.3% were severely retarded. (34 refs.) - *R.K. Butler.*

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1751 SHAPIRO, SAM, SCHLESINGER, EDWARD R., & NESBITT, ROBERT E. L., JR., eds. *Infant, Perinatal, Maternal, and Childhood Mortality in the United States*. Cambridge, Massachusetts, Harvard University Press, 1968, 388 p. $7.95.

Although infant, maternal, and childhood mortality rates in the United States decreased by 75% from 1900 to 1950, infant mortality rates were relatively static between 1955 and 1965, and the rate of decrease in childhood and maternal mortality was reduced between 1955 and 1960. By the 1950s, most women delivered by private physicians received regular prenatal care; however, unfavorable pregnancy outcomes such as MR, CP, and convulsive disorders continued to occur. While massive routine screening of newborns for PKU and the application of significant developments in this area have occurred almost simultaneously, the use of complex techniques to evaluate women with suspected endocrine or metabolic disorders was initiated in only a few medical centers, and application to large populations may be indefinitely deferred. Screening procedures have been developed for galactosemia and maple syrup urine disease; many chromosomal abnormalities have been identified, and genetic counseling is now available in some areas. The 1962 report of the President's Panel on MR recommended the expansion and initiation of services for the MR as well as the initiation of a prevention program. The 1963 Maternal and Child Health Amendments to the Social Security Act authorized a gradual increase in annual appropriations for state formula grants for maternal and child-care services from $25 million in 1962 to $50 million in 1970. Since 1964, the Federal government, in cooperation with state and local governments, has established a variety of programs to investigate problems associated with poverty. This book presents an analysis of long- and short-term trends in the relationships among death rates, cause of death, and demographic characteristics as well as a review of services, facilities, and costs. It should be of interest to individuals in the fields of medicine, public health, social work, law, biochemistry, and endocrinology. (22 refs.) - *J. K. Wyatt.*

CONTENTS: Infant and Perinatal Mortality; Maternal Mortality; Childhood Mortality; Health Services and Resources.

1752 CASSADY, GEORGE. Anencephaly: A 6 year study of 367 cases. *American Journal of Obstetrics and Gynecology*, 103(8):1154-1159, 1969.

Retrospective analysis of birth and death certificates revealed 367 anencephalic births in the state of Alabama between 1961 and 1966 (an overall incidence of 0.826/1,000 births). There was a steady increase in incidence during each year of this period. Ninety-two percent were Caucasian and 8% Negro. Sixty-four percent were female, 58% were premature, and 57% had fetal growth retardation. There was no consistent seasonal or geographic factor independent of race or population distribution. An excessive perinatal loss in previous pregnancies was striking, as was the incidence of associated congenital malformations (14% but probably underreported due to infrequent autopsies). (15 refs.) - *E. L. Rowan.*

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1753 SCHAIN, R. J. Carbonic anhydrase inhibitors in chronic infantile hydrocephalus. *American Journal of Diseases of Children*, 117(6):621-625, 1969.

The effects of carbonic anhydrase inhibitors on CSF pressure in 4 MR children (CA 2 to 4 yrs) who had chronic hydrocephalus were minimal. All were residents in a state home for the MR, and none had received surgery. Acetazolamide 20 to 55 mg/kg/day and methazolamide (Neptazane) 10 mg/kg/day were given orally in 2 or 3 divided doses. Acetazolamide was used for about 3 months; after a second 3-month interval, it was begun again in 2 cases. Lumbar CSF pressure assessments were made at 2-week intervals. An initial decrease of mean CSF pressure occurred in the acetazolamide group; however, this was followed by a rebound to the approximate level of control periods and there were some side effects. Methazolamide caused hyperventilation severe enough to warrant halting its use after one week, and no significant effects on CSF pressure were found. Therapy with acetazolamide or methazolomide for chronic hydrocephalus was not useful. (18 refs.) - *B. Bradley.*

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1754 KIRSCH, W. M., DUNCAN, B. R., BLACK, F. O., & STEARS, J. C. Laryngeal palsy in association with myelomeningocele, hydrocephalus, and the Arnold-Chiari malformation. *Journal of Neurosurgery*, 28(3):207-214, 1968.

Although disturbances of laryngeal motor function in infants and children with hindbrain malformations are reported in otolaryngological and pediatric literature, these problems have received little neurosurgical

attention. Five cases of laryngeal palsy were found in associations with myelomeningocele, hydrocephalus, or the Arnold-Chiari malformation. The degree of laryngeal palsy differed in each case and necessitated frequent laryngoscopic examinations of vocal cord function. In 3 cases, the degree of vocal cord paralysis and intracranial pressure were related and the stridor was relieved by reduction of intracranial pressure. In one S with severe stridor, a tracheostomy was necessary. In these cases abductor function appeared to fail despite the presence of intact adduction. It is difficult to determine the major factor responsible for the laryngeal dysfunction. In 2 cases with the Arnold-Chiari malformation, laryngeal dysfunction continued although the pressure was normal. Laryngeal and pharyngeal motility returned to normal after suboccipital and rostral posterior cervical decompression; however, suboccipital decompressive surgery for the treatment of the Arnold-Chiari malformation is risky with a significant mortality rate. (27 refs.) - *L. E. Baylies.*

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Denver, Colorado 80220

1755 LORBER, JOHN, & ZACHARY, R. B. Primary congenital hydrocephalus: Long-term results of controlled therapeutic trial. *Archives of Disease in Childhood,* 43(231):516-527, 1968.

A study of 30 infants with primary congenital hydrocephalus treated during the year 1959-1960 was made in an attempt to assess the value and limitation of surgical treatment. Hydrocephalic infants under one year were randomly allocated to a surgical or a control group. All but 2 of 13 control infants had to be operated later. Regular check-ups of all infants were done at 6, 12, 18, and 24 months of life, then at each birthday; assessment for schooling purposes was made by an educational psychologist before the fifth birthday. Mortality up to October 1967 was 17% (5 cases) of which 3 cases died because of the hydrocephalus or its treatment. Complications included: skin breaks over the Holter valve with infection and development of staphylococcal and streptococcal meningitis and blockage of the shunt due to thrombosis and bacterial colonization. The 25 survivors reached the age of 7 to 9 years and were classified into 4 groups: 9 normal Ss (head circumference below the ninetieth percentile; IQ 80-128), 4 normal Ss (head circumference over ninetieth percentile; no neurological sequelae), 8 Ss with normal IQ but with neurological lesions, and 4 Ss with mental and physical handicaps. Eighteen children attended normal primary schools. Thirteen were normal and 5 had handicaps, but were encouraged to attend ordinary school. Seven children required special training centers. IQ was 120 and over in 2 Ss; from 90-119 in 12 Ss; 70-89 in 7 Ss; 50-69 in 2 Ss; and below 50 in 2 Ss. None of controls achieved a higher IQ than 101. Spontaneous arrest of hydrocephalus is rare, and if the head growth stops, the neurological damage is progressive. There is no contraindication for treatment even in most severe hydrocephalus; IQs were higher in children treated earlier. (8 refs.) *C. R. Wolff.*

Department of Child Health
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1756 FORREST, D. M., & COOPER, D. G. W. Complications of ventriculo-atrial shunts: A review of 455 cases. *Journal of Neurosurgery,* 29(5):506-512, 1968.

Of a series of 455 hydrocephalic infants who were treated with ventriculo-atrial drainage and Holter valves, 352 (78%) required at least one revision. There were 78 deaths in the series of which 44 were due to valve complications. The most common problem was catheter blockage. This occurred 106 times in the proximal catheter (the choroid plexus reacts to it as a foreign body) and 105 times in the distal. The distal catheter was misplaced 53 times. Valve failure was noted only 25 times but septicemia and colonization of the valve occurred in 49 cases. Less frequent problems included superior vena cava occlusion, inferior vena cava occlusion, pleural effusion, and cardiac tamponade. Children should undergo prophylactic lengthening of the distal catheter in order to keep pace with normal growth and the valve system should be maintained indefinitely. Reduced operating time and more careful follow-up can reduce complications of ventriculo-atrial drainage. (18 refs.) - *E. L. Rowan.*

Spina Bifida Research Unit
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1757 MURRAY, SHIRLEY, & WOOD, D. E. Myeloscintigrams in the assessment of lumboperitoneal shunts. *Canadian Medical Association Journal,* 100(6):277-280, 1969.

The patency of lumboperitoneal shunts in 9 patients treated for hydrocephalus has been assessed, using 2 radioisotopic methods: a

point-counting technique and scanning with a 10-crystal rectilinear scanner, following the lumbar subarachnoid injection of ^{131}I serum albumin or ^{99m}Tc albumin. Interpretation of the point-counting technique proved difficult. Patency of the lumboperitoneal shunt was readily demonstrated by scanning. Only one of the 4 patients studied by the scanning method showed a patent shunt. (6 refs.) *Journal summary.*

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1758 SHARRARD, W. J. W. Hydrocephalus: Methods of assessment and their relation to treatment by early closure. *Proceedings of the Royal Society of Medicine,* 60(8):767-769, 1967.

Surgical closure of a myelomeningocele within the first 48 hours of life resulted in less morbidity and mortality than did conservative management in a total of 526 children who were approximately equally distributed in both groups. Mortality 3 years after birth was 68% in the conservatively-managed group and 49% in the operative group. There was little difference in the high incidence of hydrocephalus (83% in conservative and 79% in operative), but a dramatic improvement in lower limb paralysis was noted in the operative group where 34% had normal limbs as compared to 12% of the conservatively-managed group. Early operation and subsequent orthopedic procedures to correct deformity and muscle balance at each joint permitted independent walking (some with calipers) in over 90% of children who reached the age of 5 years. (4 refs.) - *E. L. Rowan.*

Children's Hospital
Sheffield, England

1759 QUIBELL, E. P. Principles and problems of rehabilitation in spina bifida. *Proceedings of the Royal Society of Medicine,* 6(8):769-772, 1967.

The proper management of a child with spina bifida in a residential hospital requires that treatment procedures be related to the normal stages of child development. Urological management is most critical but diversionary procedures such as ileal loops should be postponed until orthopedic surgery on hips or spine has been completed and the child can manage his own appliances. Trophic lesions and fractures are common because of anesthesia and the child must be taught the hazards of an anesthetic skin, and appliances must be checked for pressure areas. If ventriculoatrial shunts are present, they must be monitored clinically and radiographically. Special provisions for education must accompany physical care. (4 refs.) - *E. L. Rowan.*

Chailey Heritage
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1760 Thicker mantle, higher intelligence. *Medical World News,* 10(20):28, 1969.

The thickness of the cerebral mantle appears to be associated with prognosis for hydrocephalic children. In a longitudinal study of 90 hydrocephalic children treated by Holter valve shunt, 34 (21 with cerebral mantles of 2 cm or less initially) developed cerebral mantles of 3 cm or more, and of these, 31 had IQs of 80 or above. If the cerebral mantle remains 2 cm or less, the child will probably be retarded. Mantle thickness can be determined by lateral X-rays in the brow-up position. Cerebral mantle development will be optimal if treatment is started before 6 months of age. (No refs.) - *V. G. Votano.*

1761 WOODARD, JAMES C. Study of one-carbon metabolism in neonatal vitamin B_{12} deficient rats. *Journal of Nutrition,* 98(2): 139-146, 1969.

Rats fed diets deficient in vitamin B_{12} or other lipotropic agents produced neonates with hydrocephalus, umbilical hernia, and spina bifida. Hydrocephalus was highest in those animals whose dams were fed a vitamin B_{12} and choline deficient diet which was supplemented with 2.1 or 4.2 mmoles/100 g of diet of *DL*-methionine. Even the highest levels of methionine failed to prevent hydrocephalus. There were no differences between experimental and control animals in deoxyribonucleic acid, ribonucleic acid, protein, lipids, phospholipids, or proteolipids. It seems probable, therefore, that the dams provide one-carbon fragments to the embryo at the expense of their own nutritional requirements. (23 refs.) - *F. J. McNulty.*

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1762 SUZUKI, KINUKO, & RAPIN, ISABELLE. Giant neuronal mitochondria in an infant with microcephaly and seizure disorder. *Archives of Neurology*, 20(1):62-72, 1969.

An infant with a clinical history of microcephaly, spasticity, developmental retardation, and seizures was subjected to brain biopsy at age 3 months and examined after death at age 42 months. The biopsy specimen showed immature white matter with deficient myelin on light microscopy. Electron microscopy demonstrated many unusual mitochondria characterized by increased diameter of the profiles and decreased density of the matrix. Most of the glia contained cytoplasmic droplets suggestive of lipid. At postmortem examination there was a band of hypocellularity corresponding to the third and fourth layers of cortex. There was a paucity of myelin. Enlarged mitochondria were still present. Mitochondria contain organized enzyme systems; therefore, neuronal metabolism must have been altered. The clinical course and light and electron microscopic findings were nonspecific; however, the demonstration of significant abnormalities in ultrastructure should make future electron microscopic studies of central nervous system lesions both mandatory and productive. (36 refs.) *E. L. Rawan.*

Department of Pathology
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1763 SAYLI, BEKIR S., ERURETEN, ILKSEN, & TOPUZ, ULKU. Sjogren-Larsson syndrome in a Turkish family. *Journal of Medical Genetics*, 6(3):352-353, 1969.

Three sibs (one male and 2 females) with Sjogren-Larsson syndrome were born to consanguineous Turkish parents. The parents are normal and healthy and exhibit no characteristics of the syndrome. Clinical symptoms in the sibs include MR, retarded motor development, spastic diplegia, and ichthyosiform skin. Laboratory investigations revealed no metabolic defect nor chromosomal abnormality. (8 refs.) - *A. Huffer.*

Department of Genetics
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Ankara, Turkey

1764 LAXDAL, OLIVER E., SINHA, R. P., MERIDA, JO, WONG, LEI CHING, & STEPHEN, JAMES D. Reye's syndrome: Encephalopathy in children associated with fatty changes in the viscera. *American Journal of Diseases of Children*, 117(6):717-721, 1969.

Two children (CA 2 and 4 yrs old) with Reye's syndrome had an upper-respiratory tract infection followed by a brief latent period. In both children severe vomiting occurred followed by dizziness, weakness, and mental confusion. Both had convulsions, coma, profound hypoglycemia, acidosis, and ketosis, and both died within 4 days. Postmortem data showed diffuse cerebral swelling and marked fatty infiltration of the liver and proximal tubules of the kidneys. Results of therapy have been poor, but possibilities include corticosteroids, exchange transfusions, and sterilization or modification of the intestinal flora. Procedures for children with this syndrome should include tests of liver function, viral studies, and toxicologic studies. (22 refs.) *B. Bradley.*

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1765 ABRAHAM, J. M., & *SNODGRASS, G. J. A. I. Sotos' syndrome of cerebral gigantism. *Archives of Disease in Childhood*, 44 (234):203-210, 1969.

Two new cases of Sotos' syndrome of cerebral gigantism are remarkably similar to those documented earlier. A high birth-weight for gestational age and rapid growth from infancy are characteristic as are the features of macrocrania, dolicocephaly, hypertelorism, a high-arched palate, and prognathism. These children are clumsy and late in reaching developmental milestones, but this may reflect difficulty of the locomotor system in coping with the unusual size. MR is characteristic, but may be mild, and these 2 patients had specific test difficulties in the locomotor area and in hearing and speech. Convulsions are common, but EEGs have either been normal or shown nonspecific changes. The ventricular system is usually enlarged on contrast studies. Endocrine studies in these 2 cases were normal which suggests that an increased production of, or sensitivity to, growth hormone was not responsible for the syndrome. Normal

endocrine studies, characteristic facies, and the neurological findings suggest a congenital malformation syndrome. (24 refs.) - *E. L. Rowan.*

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1766 SCHURR, PETER H. Craniosynostosis. *Developmental Medicine and Child Neurology*, 10(6):789-792, 1968.

Certain cranial deformities may be associated with premature sutural fusion (craniosynostosis) and may cause MR or severe neurological disorders. Craniosynostosis predominates in males by a 3:1 ratio; however, a definite etiology has not been established. This disorder may be differentiated into oxycephaly (total fusion), scaphocephaly (fusion of the sagittal suture with an anteroposterior elongation of the skull), brachycephaly (a lack of anterioposterior growth), plagiocephaly (gross asymmetry of the skull), and trigonocephaly (in which a prow is produced in the middle of the forehead by premature fusion of the metopic suture). Fortunately, oxycephaly in which the risk of MR is the greatest, is the rarest form of craniosynostosis (8%). To prevent brain damage, an operation to relieve the pressure must be done before the end of the first week of life. If the operation is to be done for cosmetic reasons, it must be performed before the age of 3 months. (8 refs.) - *C. R. Wolff.*

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1767 HABERLAND, CATHERINE, & PEROU, MAURICE. Primary bilateral anophthalmia. *Journal of Neuropathology and Experimental Neurology*, 28(2):337-351, 1969.

Primary bilateral anophthalmia was proven by serial sections of the orbital tissue and alterations in the central visual pathways found at autopsy on a 25-year-old male MR. There was no history of consanguinity, hereditary disease, nor mental deficiency in the family. The parents and 3 siblings were in good health. It was noted at birth that the optical structure was absent; at autopsy it was noted that there was a total absence of optic nerves, optic chiasm, and optic tracts, and the circle of Willis was malformed. The eyeballs were absent. The adnexa of the eyes were present, but were hypoplastic, and the orbits were smaller than usual. The lateral geniculate bodies of the central visual system were reduced in size and had an abnormal cyto- and myelo-architecture. The changes in the central visual system were interpreted as associated changes determined by failure of development of the optic vesicles. The absence of the retinal elements and their projection fibers probably induced a chain of alterations in the development of the lateral geniculate bodies and visuosensory cortex. The lateral geniculate bodies may possess an innate tendency to differentiate from the thalamus; however, in the absence of projection fibers from the retina, they fail to develop. (18 refs.) - *F. J. McNulty.*

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1768 NADJMI, BORZO, FLANAGAN, MALACHI J., & *CHRISTIAN, JOSEPH R. Laurence-Moon-Biedl syndrome. *American Journal of Diseases of Children*, 117(3):352-356, 1969.

A 13-year-old girl with the Laurence-Moon-Biedl syndrome and genitourinary tract anomalies illustrates the need for urologic analysis in all patients with this syndrome. This condition involves MR, familial occurrence, obesity, genital dystrophy, polydactyly or syndactyly, retinitis pigmentosa and other defects. Two major genetic theories may explain this condition: single genes produce all the signs, and incompleteness of the syndrome is due to modifying genes; or both genes are recessive and occur on the same chromosome. Parents of this girl are third cousins. In addition to the usual symptoms, this S had multiple genitourinary tract anomalies including a urogenital sinus, congenital vesico-vaginal fistula, bilateral vesico-ureteral hydronephrosis, and hypoplastic kidney. Two siblings also had polydactyly, strabismus, MR, and obesity. (20 refs.) *B. Bradley.*

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1769 BROHOLM, KARL-AXEL, EEG-OLOFSSON, ORVAR, & *HALL, BERTIL. An inherited chromosome aberration in a girl with signs of de Lange syndrome. *Acta Paediatrica Scandinavica*, 57(6):547-552, 1968.

The de Lange syndrome consists of MR, short stature, and a characteristic facial appearance; however, despite low clinical variability in the picture, there have been few

chromosomal abnormalities demonstrated (16% in one study), and these have been widely different. An SMR 5-year-old girl had classic facies (confluent bushy eyebrows, long curved eyelashes, short up-turned nose, elongated philtrum, thin upper lip, and low-set ears) but was of normal stature. Dermatoglyphically, she had a low total ridge count and high *atd* angle on her palm prints. Chromosomal analysis showed an unbalanced D/B translocation in the patient and a balanced translocation in her phenotypically normal mother and sisters. This patient probably does not have true de Lange syndrome, but a strict definition of this entity and enumeration of the clinical variations would be valuable. (18 refs.) - *E. L. Rowan.*

*Institute of Genetics
Lund, Sweden

1770 RUVALCABA, R. H. A., REICHERT, ALBERT, & SMITH, DAVID W. Smith-Lemli-Opitz syndrome: Case report. *Archives of Disease in Childhood,* 43(231):620-623, 1968.

A 6-year-old MR boy with the Smith-Lemli-Opitz syndrome was found to have abnormal carbohydrate metabolism and anomalous brain structure. Dermatoglyphic studies showed one whorl, one radial and 7 ulnar loops, and one vestigial pattern. Laboratory examination and diagnostic tests were within normal limits; however, radiological studies revealed some fused, Y-shaped metacarpals, and a pneumoencephalogram revealed a small cerebellum and dilatation of the third and lateral ventricles. Carbohydrate studies revealed the development of hypoglycemia after fasting and after the administration of a ketogenic diet. (10 refs.) - *M. T. Lender.*

Rainier School
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Buckley, Washington 98321

1771 DALLAIRE, L. Syndrome of retardation with urogenital and skeletal anomalies (Smith-Lemli-Opitz syndrome): Clinical features and mode of inheritance. *Journal of Medical Genetics,* 6(2):113-120, 1969.

Diagnosis of the syndrome of MR and multiple urogenital and skeletal anomalies as described by Smith, Lemli, and Opitz in 1964 has become more difficult as a diversity of phenotypes has been reported in the literature. A study of 9 affected children from 6 families has confirmed some of the clinical features, especially hypotonicity (progressing to spasticity if the child survives) and psychomotor retardation. Characteristic facies result from a broad nose bridge, anteverted nares, micrognathia, and broad maxillary ridges. Pedal syndactyly is common. Urogenital defects are common in males but not in females. Dermatoglyphics are often abnormal with a palmar transverse crease and a high number of digital whorls, the most frequent findings. The families in this study had no chromosomal or amino acid abnormalities. There is a tendency for this syndrome to recur in families and the ratio of affected to normal children suggests an autosomal recessive mode of inheritance. (9 refs.) - *E. L. Rowan.*

Medical Genetics Laboratory
Douglas Hospital
Montreal, Canada

1772 JANCAR, J. Potter's syndrome with mental retardation (Auro-renal syndrome; Reno-facial dysplasia). *Journal of Mental Deficiency Research,* 13(1):8-12, 1969.

A 33-year-old MR male with Potter's syndrome was found to suffer also from congenital absence of the left ear, facial asymmetry, micrognathia, abnormal dermatoglyphics, and congenital abnormality of the right urinary tract. Exploratory surgery located a large, closed hydronephrosis and loss of renal tissue; after nephrectomy, gross chronic pyelonephritis was demonstrated. (17 refs.) *V. G. Votano.*

State Park Hospital Group
Bristol, England

1773 MILLARD, MARGARET. The polydactyly/imperforate-anus/vertebral-anomalies syndrome. *Lancet,* 1(7586):156, 1969. (Letter)

A 10-month-old boy exhibited congenital anomalies, congenital heart disease, and failure-to-thrive. Congenital anomalies included unclosed posterior neural arches, hemivertebra, imperforate anus, hypoplastic left ribs, thumb with phalanges absent, cryptorchidism, tracheomalacia, and a tongue cyst. (2 refs.) *A. Huffer.*

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1774 VITALE, L., OPITZ, J. M., & *SHAHIDI, N. T. Congenital and familial iron overload. *New England Journal of Medicine*, 280 (12):642-645, 1969.

Two infants with hypotonia and minor congenital anomalies were found to have a striking increase in the total body iron in the absence of any hemolysis or unusual iron intake. The increase in iron was demonstrated histochemically and also by direct tissue iron determination. The absence of hemolysis and exogenous iron intake suggested a disturbance of iron transfer *in utero*. The presence of iron overload in both infants with similar clinical and pathological findings indicated that this condition is probably genetically determined. (28 refs.) - *Journal abstract.*

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1775 JUBERG, RICHARD C., & HAYWARD, JAMES R. A new familial syndrome of oral, cranial, and digital anomalies. *Journal of Pediatrics*, 74(5):755-762, 1969.

The association of cleft lip and palate with microcephalus and deformities of the extremities is reported for the first time in 5 of 6 children from normal parents. Two brothers had congenital malformations involving the oral cavity, cranium and extremities, and 3 of their 4 sisters had similar, but fewer and less severe, anomalies of the same structures. The syndrome appears to be due to a single autosomal recessive gene with widely variable expression. (11 refs.) - *F. J. McNulty.*

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1776 DUBOWITZ, VICTOR. A syndrome of benign congenital hypotonia, gross obesity, delayed intellectual development, retarded bone age, and unusual facies. *Proceedings of the Royal Society of Medicine*, 60(10): 1006-1008, 1967.

Two children presented with similar syndromes of gross hypotonia and feeding difficulty at birth. As motor function improved, however, there was dramatic development of obesity. These patients also had characteristic facies, relatively retarded height, delayed bone age, and an intellectual impairment which became apparent later. The 2 most significant features suggest that these children have the hypotonia-obesity syndrome first described by Prader and Willi. (7 refs.) - *E. L. Rowan.*

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Sheffield, England

1777 SINGH, R. P., & CARR, D. H. Congenital anomalies in embryos with normal chromosomes. *Biologia Neonatorum*, 13(1-2):121-128, 1969.

Out of a series of 95 spontaneous abortuses with a normal complement of chromosomes, there were 16 with at least one anomaly. Three of these were minor and compatible with life. Six embryos were severely retarded in development (1 nodular, 2 cylindrical, and 3 stunted embryos). Four had an omphalocele or umbilical hernia, the frequency of which among abortuses is 90 times that found at birth. The estimated age of these abortuses was significantly less than menstrual age so that abnormal embryos and fetuses are retarded in growth *in utero*. (26 refs.) *E. L. Rowan.*

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University of Western Ontario
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1778 MOORE, CONNER M., McADAMS, A. JAMES, & SUTHERLAND, JAMES. Intrauterine disseminated intravascular coagulation: A syndrome of multiple pregnancy with a dead twin fetus. *Journal of Pediatrics*, 74(4):523-528, 1969.

Intrauterine disseminated intravascular coagulation occurred in 3 infants, each of whom was the product of a twin pregnancy with a macerated sibling. Two other cases are reported in the literature. Monochorionic placentation with intertwin placental shunts probably resulted in the feto-fetal exchange of thromboplastic material from the dead sibling. Extensive renal cortical necrosis and encephalomalacia were noted in the 2 infants who died. The extent of cerebral damage would suggest an extremely poor prognosis although the lone survivor was apparently well at 9 months of age. (18 refs.) - *E. L. Rowan.*

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1779 CHUNG, C. S., & MYRIANTHOPOULOUS, N. C. Racial and prenatal factors in major congenital malformations. *Human Genetics*, 20(1):44-60, 1968.

A comparative study of Negroes and Caucasians to determine the incidence of certain congenital malformations showed the latter to have significantly (χ^2 = 24.90, P<.01) higher incidences of most, but not all of the anomalies studied. Over 35,000 live and stillbirths at 12 hospitals were studied. The Caucasian incidence of talipes calcaneovalgus and equipnovarus, cleft lip with or without cleft palate, syndactyly and anencephaly was higher than in Negroes; whereas, the reverse was found for polydactyly. There was no definite difference, racially, in the incidences of metatarsus varus, hypospadius, specific cardiovascular anomalies, or certain nervous system malformations. For the most part, the incidences for the anomalies studied appeared to be somewhat higher than previously reported. Analysis of antenatal factors showed the Negro proband families to have come from lower socioeconomic status with more maternal disease prior to and during pregnancy. However, the Caucasian mothers had a higher frequency of medication usage. Furthermore, no correlation between any antenatal factor and any malformation could be found; although increasing maternal age appeared to be related to the presence of congenital cardiac malformations, the same could be said for maternal hypertension and fetal polydactyly. No difference within the racial groups could be found between the cases and matched controls for maternal age, parity, X-ray exposure, hypertension, medication usage, disease, or socioeconomic status. (31 refs.) *E. Gaer.*

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1780 DUBOWITZ, VICTOR. *The Floppy Infant.* (Clinics in Developmental Medicine Number 31). London, England, Spastics International Medical Publications, 1969, 109 p., $6.00.

Muscular hypotonia is a common symptom in infancy, and the complex subject has been made even more complex by confused nomenclature and an increased number of possible causes. From a practical point of view, it is essential to first differentiate those "floppy infants" with and without paralysis. The paralyzed group includes infantile spinal muscular atrophy, congenital myopathies, and other neuromuscular disorders. Hypotonia without paralysis is commonly associated with MR, cerebral palsy, and connective tissue, metabolic, nutritional, and endocrine disorders, and is also present without other manifestations--the so-called "essential hypotonia." Clinical observation should be supplemented by appropriate diagnostic procedures. Muscle biopsy with specific histologic, histochemical, and electron microscopic evaluation is most useful. Serum enzymes, electromyography, and nerve conduction studies are of value in certain instances. Besides diagnosis and treatment, the clinician must also provide periodic reassessment and strive for appropriate educational and vocational training for those patients with physical and/or mental impairment. This book will be useful to physicians dealing with neuromuscular disorders in children. (215 refs.) - *E. L. Rowan.*

CONTENTS: A Practical Approach to the Diagnosis and Classification of the Floppy Infant; Paralytic Disorders, Muscular Weakness with Incidental Hypotonia; Non-Paralytic Disorders, Hypotonia Without Significant Weakness; Diagnostic Procedures; Current Management: Future Research.

Gross brain disease (Postnatal)

1781 OLSSON, YNGVE, & SOURANDER, PATRICK. The reliability of the diagnosis of metachromatic leucodystrophy by peripheral nerve biopsy. *Acta Paediatrica Scandinavica*, 58(1):15-24, 1969.

Although the presence of sulfatides in peripheral nerves is widely accepted as diagnostic proof of metachromatic leukodystrophy (MLD) it is now known that sulfatide is a normal component of myelin and accumulation can be demonstrated in normal patients as well as in those with a wide variety of peripheral neuropathies. Comparison was made among verified cases of MLD, other neuropathies including globoid cell leukodystrophy, juvenile amaurotic idiocy, infantile amaurotic idiocy, diabetic, uremic, and carcinomatous peripheral neuropathies, and normal Ss. The best staining technique for sulfatides appears to be that of Hirsch and Peiffer with cresyl violet and acetic acid applied to frozen sections. Advanced cases of MLD show a granular accumulation in Schwann cells and especially in

perivascular and subperineurial phagocytes. There are also axon and myelin lesions. Other neuropathies and normals show some metachromatic substances in nerve fibers and Schwann cells but none in phagocytes. These, however, cannot reliably be differentiated from early cases of MLD. (35 refs.) - *E. L. Rowan.*

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1782 AUSTIN, JAMES, ARMSTRONG, DONALD, FOUCH, SALLY, MITCHELL, CURTIN, STUMPF, DAVID, SHEARER, LESLIE, & BRINER, O. Metachromatic leukodystrophy (MLD) VIII. MLD in adults: Diagnosis and pathogenesis. *Archives of Neurology,* 18(3):225-240, 1968.

A 62-year-old male with metachromatic leukodystrophy (MLD) was found to have elevated urinary sulfatides and decreased urinary sulfatase A levels. The patient's brother, who died at age 47, also had MLD. Indications are that different genetic mechanisms are responsible for the differences in the adult and infantile MLD. Since sulfatase A regulates the level of sulfatides, its deficiency will lead to cerebroside sulfatase deficiencies and abnormally increased cerebral sulfatide levels with eventual cerebral sulfatide lipidosis. The difference in onset and course of adult and infantile MLD may be due to a less complete sulfatase A deficiency in the former. Furthermore, since myelination is generally complete in the adult, there is less need for a myelin-sulfatide turnover and consequently less need for sulfatase A. Therefore, a deficiency in the latter will be slower to develop. Finally, although the exact pathological mechanisms responsible for the various types of MLD are unknown, current evidence points to an involvement of myelin and glial factors at different levels. (62 refs.) - *E. Gaer.*

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1783 Encephalopathy and fatty infiltration of viscera in children. *Children,* 2(7618):473-475, 1969. (Editorial)

Acute encephalopathy often begins abruptly after a minor illness and is associated with high fever, loss of consciousness, seizures, irregular respiration, and usually death. Characteristic laboratory findings are: hypoglycemia, abnormal liver tests, reduced CO_2 content, and ketosis. Bacteriological and viral diagnostic tests are usually negative. Visceral findings include a fatty, enlarged liver with liver cell necrosis. Fatty infiltration is sometimes found in the kidneys and myocardial and skeletal muscle cells. The etiology of this disease may be viral, toxic, or cytopathogenic; however, the entire disorder needs elucidation. (27 refs.) - *V. G. Votano.*

1784 SHAW, RICHARD F., & DREIFUSS, F. E. Mild and severe forms of X-linked muscular dystrophy. *Archives of Neurology,* 20(5): 451-460, 1969.

A study of the population of the state of Virginia revealed the progression and prognosis characteristics of mild and severe X-linked muscular dystrophy (MD). The study was made from 1960 to 1963 and 216 cases were found in 113 families. The proband case was established by questionnaires to all physicians in state, hospital, and MD clinics. Mild MD had an age at onset greater than 8 years, age at inability to walk greater than 16 years, and age at death greater than 32 years. Mild and severe cases overlap in age at onset; however, age at inability to walk and age at death do separate the types. Severe MD has an age at onset by age 8 years, age at inability to walk by 16, and age at death of 32. Mild and severe cases do not occur in the same family, but there is no simple rule based on symptoms for determining the type of MD. The absence of the symptom, pseudohypertrophy, suggests a mild type in an unclassified patient. The frequency of mental defect in mild MD was 1/21 cases or 4.8% and, in severe MD, it was 8/88 cases or 9.1%. If the patient with an undetermined type of MD passes the age at which severely affected individuals die, he is considered to have mild MD. When asymptomatic younger brothers of dystrophics pass the typical ages at onset, they can be considered out of danger. (16 refs.) - *F. J. McNulty.*

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1785 GORDON, NEIL. Juvenile spinal muscular atrophy: A review with case report. *Developmental Medicine and Child Neurology,* 10(5):617-620, 1968.

Clinical symptoms of juvenile spinal muscular atrophy appear to be variable. This could be one disease which affects different parts of the motor system in different individuals or this diagnosis may presently include several

diverse diseases due to the specific involvement of the motor neurons. Classification of conditions under one term may make differential diagnosis difficult. A case report of a 10-year-old girl indicates a full-term birth (birth-weight 5 lbs, 12 oz), walking before one year of age, and talking at about 2 years. Weakness of facial muscles from infancy was observed by parents, as well as the fact that she seemed to fall more than other children. At 5 years of age when she entered school, walking deteriorated and the left foot began to twist inward at the age of 7 years. School work was slow and speech became difficult to understand. At the time of this report, she was able to walk about 20 yards without rest. Speech is poor and she cannot smile or blow out her cheeks. The child has a bilateral facial palsy and weakness and wasting of limbs. No sensory abnormalities were noted, but all tendon reflexes were absent and plantar responses were flexor. Electromyographic findings indicated a lesion at the level of the anterior horn cell or below. Other laboratory data indicated that this condition could be diagnosed as spinal muscular atrophy. Some relatives are crippled, but none are known to have this condition. It appears that, in many of the spinal muscular atrophies, hereditary factors have a role. Additional information on all children with spinal muscular atrophy in Great Britain may be warranted. (12 refs.) - *B. Bradley.*

Royal Manchester Children's Hospital
Manchester, England

1786 GELLIS, SYDNEY S., & FEINGOLD, MURRAY. Ataxia-telangiectasia. *American Journal of Diseases of Children*, 117(3):317-318, 1969.

The ataxia-telangiectasia syndrome is characterized by the onset of cerebellar ataxia in infancy. Telangiectasia first appears in the bulbar conjunctivae about age 3 and eventually involves the external ears, neck, and antecubital and popliteal fossae. MR is frequently noted as the disease progresses. The immune mechanism is abnormal and infections are frequent. Survival with this apparently autosomal recessive trait is dependent upon the vigorous treatment of intercurrent infections and physical therapy to maintain muscular tone and prevent contractures. (5 refs.) - *E. L. Rowan.*

Boston Floating Hospital
20 Ash Street
Boston, Massachusetts 02111

1787 KIRSCHBAUM, WALTER R. *Jakob-Creutzfeldt Disease*, New York, New York, American Elsevier Publishing, 1968, 251 p., $18.50.

Following initial reports by Jakob and Creutzfeldt in 1920-1921, 150 cases (confirmed at autopsy) have been collected of a subacute disseminated degeneration of gray matter (cortical, pyramidal, and extra-pyramidal systems) considered under the eponym of Jakob-Creutzfeldt disease. Despite clinical variability, a basic process of steadily progressive pre-senile dementia and corresponding neurological deficit emerges. Most cases are sporadic; although an afflicted family has been described. Histopathologically, there is characteristic neuronal degeneration, astroglial proliferation, variable *spongiosus* atrophy, and a significant absence of vascular pathology. Electron microscopic examination shows a disturbance in neuronal endoplasmic reticulum, ribosome depletion, and clear zones. Neurochemically, there is decreased oxidative enzyme activity. Jakob-Creutzfeldt disease is essentially a histopathological diagnosis, and further clinical electron microscopic and biochemical studies are necessary in order to determine what may be multiple etiologies. (280 refs.) - *E. L. Rowan.*

CONTENTS: The Original Description; Tabulation of the Case Reports; Comments on the Tabulated Cases and Compilation of the Data; Clinical Manifestations; Selected Case Reports; Neuropathological Aspects; Closing Remarks.

1788 TASKER, WILLIAM, & CHUTORIAN, ABE M. Chronic polyneuritis of childhood. *Journal of Pediatrics*, 74(5):699-708, 1969.

Clinical features of chronic polyneuritis of childhood in 17 Ss (CA 2 to 15 yrs) included gait disturbance, leg pain, loss of deep tendon reflexes, quadriparesis, flaccid quadriplegia, sensory deficit, and cranial neuropathy. All patients had elevated cerebral spinal fluid proteins and 15 had decreased nerve conduction velocity. Prednisone treatment (1 to 2.5 mg/kg/day) had favorable effects in all Ss, particularly in children under 5 years of age. The etiology was obscure at the initial evaluation; one of the patients later developed metachromatic leukodystrophy and another developed Dejerine-Sottas disease. (24 refs.) - *L. S. Ho.*

Winnipeg Children's Hospital
Winnipeg 3, Manitoba, Canada

1789 COOPER, JACK R., ITOKAWA, YOSHINORI, & PINCUS, JONATHAN H. Thiamine triphosphate deficiency in subacute necrotizing encephalomyelopathy. *Science*, 164(3875):74-75, 1969.

Extracts of tissue fluids from a patient with subacute necrotizing encephalomyelopathy inhibit thiamine pyrophosphate-adenosine triphosphate phosphotransferase of rat brain. Brain tissue from the patient, in contrast to normal brain tissue, contained essentially no thiamine triphosphate, although thiamine and its other phosphate esters were present in normal concentrations. These findings suggest a relation between this disease and thiamine triphosphate. (9 refs.) - *Journal abstract.*

Department of Pharmacology and
Section of Neurology
Yale University School of Medicine
New Haven, Connecticut 06510

1790 VASSELLA, F., EMRICH, H. M., KRAUS-RUPPERT, R., AUFDERMAUR, F., & TONZ, O. Congenital sensory neuropathy with anhidrosis. *Archives of Disease in Childhood*, 43(227): 124-130, 1968.

The seventh reported case of congenital sensory neuropathy with anhidrosis occurred in an 11-month-old male infant who demonstrated delayed motor and mental development, a congenital insensitivity to pain (analgia) leading to self-mutilations, and an inability to sweat (anhidrosis) leading to defective thermoregulation and periods of fever. Tactile sensation was present. Sweating could not be induced with thermal, emotional, noxious, or chemical stimuli; although simultaneous injection of acetylcholine and adrenaline produced a low rate of sweating of normal chloride concentration. The patient's parents were known to be consanguineous. (32 refs.) *E. L. Rowan.*

Department of Pediatrics
University of Berne
Berne, Switzerland

Psycho-environmental

1791 KITCHEN, W. H. The relationship between birth weight and gestational age in an Australian hospital population. *Australian Pediatric Journal*, 4(1):29-37, 1968.

Analysis of intrauterine weight data derived from 2,637 infants born between 23 and 44 weeks gestation in Melbourne (Australia) confirmed data presented by previous investigators and provided acceptable clinical growth charts for the Melbourne hospital population. Careful verification of gestational age and recording of all complications of pregnancy were performed. Malformations and stillbirths were excluded. Neonates whose birth-weight diverges widely from the average for the gestational age are subject to special hazards. Identification of this "at risk" group can be performed by use of a chart relating intrauterine weight to gestational age. Complications which affect growth made no appreciable difference in the growth curve charts. (18 refs.) - *W. Asher.*

Department of Obstetrics and Gynecology
University of Melbourne
Parkville 3052, Australia

1792 YOUNG, WINIFRED F., *SWAIN, VALENTINE A. J., & PRINGLE, ELIZABETH M. Long-term prognosis after major resection of small bowel in early infancy. *Archives of Disease in Childhood*, 44(236):465-470, 1969.

Follow-up of 4 patients (at 3, 4, 9, and 10 yrs) after small bowel resection for neonatal obstruction (atresia or volvulus) revealed that the physical growth and development of all had reached normal range, but that one of the 2 older children in whom intelligence could be measured appeared to be mildly MR. Bowel resection with associated diarrhea and malabsorption causes a prolonged period of undernutrition and growth retardation. This has responded well to prolonged in-hospital care and dietary management with easily assimilable feed, augmented by predigested protein and monosaccharides and vitamin and mineral supplements. These children must have continual access to dietary advice and be observed for alterations in bowel function and changes in growth and development. Prolonged undernutrition may affect brain development, and prolonged hospitalization may affect emotional development; therefore, both must be

attended to in order to prevent MR. (23 refs.) - *E. L. Rowan.*

*Queen Elizabeth Hospital for Children
Hackney Road
London E. 2, England

1793 CREAK, MILDRED, & PAMPIGLIONE, G. Clinical and EEG studies on a group of 35 psychotic children. *Developmental Medicine and Child Neurology*, 11(2):218-227, 1969.

No correlations among EEG abnormalities, birth events, illness or accidents, physical growth, speech, or final outcome could be found in 35 autistic children followed for 5 to 19 years. Although a large group of these patients had apparently similar psychotic features, no uniformity of type, distribution, or severity of EEG abnormalities was apparent. A number of different pathological processes may evolve into an apparently similar symptomatic pattern. Only 2 of the children improved enough to attend school with normal children. The final outcome of autism remains unpredictable, and prognosis is poor for most cases. (12 refs.) - *L. S. Ho.*

The Hospital for Sick Children
Great Ormond Street
London, England

1794 BRACKENRIDGE, C. J., & JONES I. H. The effect of neuroleptic drug treatment on plasma fibrinogen concentrations in schizophrenic states. *Journal of Neurology, Neurosurgery and Psychiatry*, 31(4):326-329, 1968.

Previous studies which showed an increased level of plasma fibrinogen in schizophrenic Ss failed to control for the possible effect of drug treatment. One hundred schizophrenic patients (equal groups of chronically psychotic children, acutely schizophrenic adults, chronic middle-aged schizophrenics, and chronic geriatric schizophrenics) and their controls had blood samples taken. The acute schizophrenics and geriatric schizophrenics (both groups on drugs) had significantly higher plasma fibrinogen levels than did their controls. Chronic middle-aged schizophrenics had no phenothiazine medication for one month prior to the study, and they showed a 40% increase in plasma fibrinogen 6 months after the drugs were reintroduced. Phenothiazines are hepatotoxic and plasma proteins synthesized in the liver would be affected by long-term drug administration. (16 refs.) *E. L. Rowan.*

Department of Psychiatry
University of Melbourne
Melbourne
Victoria, Australia

MEDICAL ASPECTS--CONVULSIVE DISORDERS

1795 VIUKARI, N. MATTI A., & TAMMISTO, PAAVC. Central effects of diphenylhydantoin (Dilantin) in epileptic oligophrenics during phenobarbital-primidone withdrawal, sodium bicarbonate, and ammonium chloride administration. *Behavioral Neuropsychiatry*, 1(8): 13-16, 1969.

Anticonvulsant therapy with diphenylhydantoin (DPH) (6.2 mg/kg/day) in 40 epileptic MRs was generally superior to combination therapy with phenobarbital or primidone plus DPH in that the sedative effects of the other 2 drugs were avoided. However, DPH did not control convulsions in 5 patients with lipidosis, and in some cases exacerbated their conditions. The induction of metabolic alkalosis by the administration of sodium bicarbonate (4 gm/day for 1 week) with DPH increased seizure frequency, while metabolic acidosis induced by ammonium chloride (7.5 to 9 gm/day) caused convulsions in one patient and DPH intoxication symptoms (nystagmus, drunkenness, and ataxia) in 5 others. The effects of metabolic alkalosis and acidosis on responses to DPH could not be related to serum and spinal fluid levels of the drug; however, sodium bicarbonate and ammonium chloride may have altered the effects of DPH on the brain sodium pump. (21 refs.) - *K. Jarka.*

A. Kannistont
5A19
Helsinki 32
Finland

1796 FEIN, BERNARD T., & KAMIN, PETER B. Allergy, convulsive disorders and epilepsy. *Annals of Allergy*, 26(5):241-247, 1968.

Evidence indicates an allergic factor in the etiology of some convulsive disorders and epilepsy. Electroencephalogram (EEG) irregularities occur in a high percentage of allergic children. In some cases of epilepsy, an allergen may have precipitated the seizures. Pollen, dust, and molds are the main offenders; foods cause a lesser reaction upon skin testing. Hyposensitization, anticonvulsants and diet therapy were tested and were somewhat successful in a number of cases. Further studies need to be made on the relationship of allergenic and neurological disorders. (27 refs.) - *L. E. Bayliss.*

216 Medical Professional Building
San Antonio, Texas 78212

1797 HERSHON, HOWARD I., & *PARSONAGE, MAURICE. Comparative trial of diazepam and pheneturide in treatment of epilepsy. *Lancet*, 2(7626):859-862, 1969.

The anticonvulsant activities of diazepam (Valium) and pheneturide were tested in a double-blind study in 32 epileptic patients; 50% of the patients treated with either drug had reduced seizure frequency. Diazepam and pheneturide were given at 10 to 30 mg/day and 200 to 625 mg/day, respectively. Drowsiness and ataxia were the most frequent side effects. Two Ss in the diazepam group and 6 in the pheneturide group were withdrawn from the test because of the side effects. Generally, patients with epilepsy of subcortical origin, with seizures related to stress or which occur in clusters or under age 21 did better than average. (15 refs.) - *L. S. Ho.*

*General Infirmary
Leeds 1, England

MEDICAL ASPECTS--CHROMOSOMAL

1798 CARTER, RODNEY, BAKER, ELIZABETH, & HAYMAN, DAVID. Congenital malformations associated with a ring 4 chromosome. *Journal of Medical Genetics*, 6(2):224-227, 1969.

A male infant, who died shortly after birth, was noted to have multiple congenital anomalies including microcephaly, brachycephaly, proptosis, coloboma, harelip and cleft palate, deformed ears, hypospadius, and skeletal anomalies. Autopsy revealed hypoplastic brain and kidneys and a patent foramen ovale. Chromosomal analysis showed most cells to contain a monocentric ring and a missing B group chromosome. Although autoradiography could not be done, the group of abnormalities was unlike the *cri-du-chat* syndrome associated with absence of a portion of the short arm of number 5 and similar to 6 reported cases of partial deletion of a number 4 chromosome. (12 refs.) - *E.L. Rowan.*

Department of Pathology
Adelaide Children's Hospital
North Adelaide
South Australia

1799 SMITH, G.F., SHEAR, CAROL S., JALOWAYSKY, IRENE, & AKESSON, H.O. An unbalanced karyotype in a translocation (Cq-, Aq+) pedigree. *Journal of Mental Deficiency Research*, 13(2):123-129, 1969.

An MR female child with an extra chromosome in the E group was born to a mother who had 46 chromosomes with a balanced translocation (Cq-, Aq+). The patient was the result of a full-term pregnancy. On the third day of life, the infant developed marked jaundice with an indirect bilirubin of 18.6, and she received an exchange transfusion, even though no group incompatibility was detected. The patient's extra chromosome was a C group chromosome with a deletion; it was about the size of a number 16 chromosome but with a different shape. The centromere was submetacentric with a major difference in the length of the arms. The patient showed no evidence of mosaicism. (11 refs.) - *G. Pura.*

Child Development Center
University of Miami
Miami, Florida 33146

1800 Hands point up chromosomal defect. *Medical World News*, 10(38):19, 1969.

A C-group chromosomal abnormality manifested by hypoplasia of fingernails and toenails and an alteration in finger structure was detected in 3 cases. Although this "duplication-deficiency syndrome" which involves the E chromosome as well as the C, does not account for a significant number of MR cases, the discovery is noteworthy because the degree of MR which occurs is severe. (No refs.) *V.R. Shaffer.*

1801 WILSON, MIRIAM G., MELNYK, JOHN, & TOWNER, JOSEPH W. Retinoblastoma and deletion D (14) syndrome. *Journal of Medical Genetics*, 6(3):322-327, 1969.

A case report of an MR girl with retinoblastoma and a partial deletion of the long arm of chromosome 14 increased to 4 the number of reported cases of chromosomal aberration associated with tumor. The mother appeared healthy, and there were 2 normal sibs, but all 3 children had different fathers and data regarding the father of this child was not available. No maternal history of retinoblastoma, congenital malformations, or MR was found. At the age of 5 years, the child's behavior quotient as indicated by the Gesell developmental testing ranged from 30-50. All karyotypes indicated a partial deletion of the long arm of a D chromosome; the deleted chromosome was demonstrated by autoradiography as chromosome 14. Although retinoblastoma and deletion of chromosome D (14) is a valid chromosome deletion syndrome, it does not have multiple severe anomalies. (27 refs.) - *B. Bradley.*

University of Southern California
School of Medicine
Los Angeles, California 90033

1802 GELLIS, SYDNEY S., & FEINGOLD, MURRAY. Trisomy 13-15. *American Journal of Diseases of Children*, 118(3):483-484, 1969.

Meiotic nondisjunction was thought to be the cause of the extra chromosome in trisomy 13-15, although other chromosomal abnormalities are also related. Patients with this syndrome generally do not survive past the first year. They are characterized by a large broad nose, cleft lip and palate, microcephaly, hypertelorism, and congenital heart disease. (4 refs.) *J. M. Gardner.*

Boston Floating Hospital
Boston, Massachusetts 02111

1803 ARAKAKI, D.T., & WAXMAN, S.H. Trisomy D in a cyclops. *Journal of Pediatrics*, 74(4):620-622, 1969.

The cyclops malformation of a single orbital fossa with a nose-like tubular appendage above it occurred in an female infant who was shown on chromosomal analysis to have an extra D chromosome. Autoradiographic studies revealed this to be a number 13. Chromosomal studies have now been reported on 9 cases of cyclopia and 5 distinct karyotypes (including normal in 3 cases and one other D trisomy) have been found. Cyclopia does not appear to be associated with a specific chromosomal defect. (14 refs.) - *E.L. Rowan.*

Cytogenetics Laboratory
Kapiolani Maternity Hospital
Honolulu, Hawaii 96814

1804 NAKAGOME, Y. DNA replication studies of human D-group chromosomes in satellite associations. *Cytogenetics*, 8(4):296-303, 1969.

Deoxyribonucleic acid (DNA) replication studies were made on metaphase plates showing satellite associations to determine the associations of individual D chromosomes. Of 21 cases analyzed, 17 had no recognizable abnormality among the D-group chromosome and the other 4 patients had conditions involving one of the D chromosomes. The entry of individual D chromosomes into satellite association is random; this eliminates the possibility that some members of the group D chromosomes associate preferentially. Nor was there a prevalence of homologous combination in D/D association. Studies of the 4 D chromosome anomaly patients (one D trisomy and 3 cases with t[GqDq]) showed that the extra chromosome was number 13 in the D trisomy and number 14 in the t(GqDq) cases. (27 refs.) - *B. Bradley.*

Department of Human Genetics
University of Michigan
1133 East Catherine Street
Ann Arbor, Michigan 48104

1805 PORTER, IAN H., PETERSEN, WILLIAM, & BROWN, CHARLES D. Double autosomal trisomy (trisomy D+G) with mosaicism. *Journal of Medical Genetics*, 6(3):347-348, 1969.

Chromosomal analyses of peripheral blood lymphocytes obtained from a male infant with congenital malformations revealed that: 10 cells had 47, XY,G+; 31 cells had 47, XY,D+; and 2 cells had 48, XY,D+,G+. Although the

family history was negative and the 34-year-old mother had not had infection or X-irradiation, the pregnancy was complicated by massive polyhydramnios. The infant had Down's syndrome features, massive distention of the stomach and proximal duodenum, annular pancreas, and opisthotonos. The mosaicism apparently occurred in gametogenesis by nondisjunction during meiosis, followed in the zygote by nondisjunction or anaphase lag during mitosis. (7 refs.) - *A. Huffer.*

New York State Health Department
Albany, New York

1806 FAED, MICHAEL, *STEWART, ANN, & KEAY, A.J. Chromosome abnormalities in two cases with bilateral radial element defects. *Journal of Medical Genetics*, 6(3):342-346, 1969.

Two patients with bilateral radial element defects (absent radii and thumbs in one case and hypoplastic thumbs in the other), congenital heart defects, and low birth-weight were noted to have mosaic chromosomal abnormalities. In one case there was a ring chromosome replacing one of the B group in one cell line and a missing B chromosome in the other line. The second patient showed one cell line with an extra G chromosome and another with D/G translocation. As in Fanconi's anemia which is also associated with radial element defects without a specific chromosomal abnormality, chromosomal instability seems to be the important factor. This instability rather than a specific genetic abnormality may be responsible for the hypoplasia and poor over-all growth. (17 refs.) - *E.L. Rowan.*

*Human Biochemical Genetics Research Unit
University College
London, England

1807 PUNNETT, HOPE H. Cerebellum in partial trisomy 18. *American Journal of Diseases of Children*, 117(3):370, 1969. (Letter)

Review of a published karyotype suggests that the patient may have had trisomy 21 rather than "partial" trisomy 18 as reported. The only clinical findings in the child were an annular pancreas and anomalies of the brain and these are compatible with mongolism. Karyotyping of chromosomes is a subjective process and meaningful only in relation to clinical findings in the patient and the chromosomes of the patient's family. (1 ref.) - *E.L. Rowan.*

No address

1808 TERPLAN, KORNEL L., & COHEN, MAIMON M. *American Journal of Diseases of Children*, 117(3):370-371, 1969. (Letter)

Structural anomalies in the dentate nucleus of the cerebellum have now been observed in a patient with a demonstrated trisomy 21 and the case presented as a "partial" trisomy 18 may have been another example of this. However, morphologically similar changes have now been observed in trisomies D, E, and G and more detailed observations of the histology of the central nervous system will be necessary to differentiate them. (3 refs.) - *E.L. Rowan.*

No address

1809 SOUDEK, D., LAXOVA, RENATA, & ADAMEK, R. Pericentric inversion in a family with a 21/22 translocation. *Cytogenetics*, 7(2):108-117, 1968.

Pericentric inversion is reported in a family with a 21/22 translocation; the inversion probably occurred during spermatogenesis in the maternal grandfather. His son and grandson had the translocation with the same configuration; however, in his daughter and her children the translocated part of the chromosome appeared on the longer arm of the marker chromosome. The female carrier of the translocation with the inversion is described as phenotypically normal, but has a tendency to develop aneuploid offspring. The mother studied has produced 2 children with Down's syndrome and had a spontaneous abortion at three months. The fourth pregnancy was artificially terminated at 8 weeks. (25 refs.) - *B. Bradley.*

Institute of Pediatric Research
Cernopolni, 9,
Brno, Czechoslovakia

1810 LILIENFELD, ABRAHAM M. *Epidemiology of Mongolism*. Baltimore, Maryland, Johns Hopkins Press, 1969, 145 p. $7.00.

A detailed review and assessment of the literature on mongolism includes: discussions of epidemiology and its historical background and incidence as well as research data on

clustering; prenatal and maternal factors; familial aggregation; mortality experience; biochemical aspects; and the association of mongolism with leukemia, other chromosomal anomalies, thyroid disease, and Hirschprung's disease. Primary concern is with differences in the frequency of mongolism under various conditions and with the identification of those characteristics which are unique to mongoloids. Reported incidence rates range from 0.32 to 3.4/1,000 for mongolism present at birth; however, rates for spontaneous abortuses with trisomy 21 are higher (10 cases out of 261), indicating that only about 20% of trisomy conceptions result in live births. Although etiological hypotheses on mongolism are usually grouped by dependence on maternal age, classification according to type of mongolism would be more useful because it would allow for the investigation of the etiology of each type and the evaluation of specific genetic and environmental influences. Reports on variations in the physical characteristics of mongoloids question etiological models which assume that mongolism is a homogeneous entity and suggest that these variations may be related to the influences of different etiological factors. Major epidemiological research which deserves high priority includes: studies of geographical areas where present evidence suggests wide differences in incidence rates; tests of all known or postulated factors associated with mongolism and tests of possible interrelations between them; and examination of parental characteristics. This book would be of interest to pediatricians, biochemists, public health personnel, and specialists in the area of chronic disease. (330 refs.) - *J.K. Wyatt.*

CONTENTS: Background; Incidence; Distribution in Time and Space; Maternal and Prenatal Factors; Familial Aggregation and Twin Studies; The Association of Mongolism with Other Diseases; Selected Characteristics of Mongols Including Mortality Experience; Etiological Hypotheses and Suggested Epidemiological Research.

1811 SAXL, O. Down's syndrome: New aspects. *Acta Paediatrica Academiae Scientiarum Hungaricae*, 9(3-4):329-336, 1969.

The gastric and intestinal mucosa of 7 mongoloid children (CA 10-14 yrs), and liver tissue from 6 other mongoloid children (CA 2 to 14 yrs) were investigated with an electron microscope. Superficial gastritis was found in all cases; however, pathological changes occurred only in the mucous cells. Changes were found in the enterocyte brush border, and the villi were short with unusual structures. Liver steatosis was apparent in 4 older children. Hyaline corpuscles were present in 2 older children and in a 3-year-old. Cytoplasmatic inclusion of glycogen was found in all but the youngest child. The clinical findings suggest a syndrome of malabsorption in mongoloid children which is similar to that found in the coeliac syndrome. In addition, tryptophan metabolic disturbances are also common which suggests an amino acid imbalance. (40 refs.) - *V.G. Votano.*

Institute of Paediatric Research
Kunzova 8
Brno, Czechoslovakia

1812 BURCH, P.R.J. Down's syndrome and maternal age. *Nature*, 221(5176):173-175, 1969. (Letter)

Since data from Swedish, English, and Serbian populations (P) on the relative frequency of Down's syndrome births can be described by the sum of functions $t \simeq 20$ and $P \propto t^{10}$ (where t=maternal age), the absolute age prevalence (P_t) of the women who are liable to produce mongoloid offspring can be expressed by the equation $P_t = S(1\text{-exp-}kt^r)^n$ where S is equal or proportional to the fraction of the general population predisposed to the disease, k is a constant from birth to death for all similarly predisposed individuals, n is the number of random events (somatic mutations in germinal stem cells) initiating the pathogenic process, and r is the interval between the last random initiating event and the first occurrence of the disorder. Actually, there are at least 2 subgroups (S_1, younger mothers with the condition completed by approximately 20 years of age, and S_2, mothers over 30 years of age) who are predisposed to produce mongoloid offspring with the S_1 group having the higher incidence of thyroid autoantibodies and thyroid disease. On the basis of the unified theory of growth and disease, nondisjunction during meiosis which leads to mongolism is caused by "a specific breakdown in the central growth control system" which results in an autoimmune attack on the germ cell. The specificity of the affected chromosomes and their nondisjunction in genetically predisposed individuals is probably due to a final pathogenic agent which recognizes and acts at the level of the target chromatids. (31 refs.) - *K. Lee.*

Department of Medical Physics
University of Leeds
Leeds
England

1813 BUCK, CAROL, VALENTINE, G.H., & HAMILTON, KATHERINE. A study of microsymptoms in the parents and sibs of patients with Down's syndrome. *American Journal of Mental Deficiency*, 73(5):683-692, 1969.

A comparison of 110 families in which there occurs a S with Down's syndrome with 100 control families gave no evidence that fathers, mothers, brothers, or sisters of affected subjects show consistently mongoloid deviations of 22 physical characteristics implicated in the microsymptomatology of that condition. The relation between this result and that of our previous comparison of the reproductive histories of the mothers in the mongoloid and control families has been discussed. (12 refs.) - *Journal abstract.*

Health Sciences Centre
University of Western Ontario
London, Canada

1814 PRIEST, J.H. Parental dermatoglyphs in age-independent mongolism. *Journal of Medical Genetics*, 6(3):304-309, 1969.

Cases of mongolism are divided into 2 groups: age-dependent (maternal age-35 yrs or over) caused by aging processes in the ovum; and age-independent (35 yrs of age or under) of genetic origin. Mothers in the age-independent group resemble their mongol child in palmar axial triradius measurements. Sixty-eight mongoloids (40 with G-group trisomy), 51 pairs of age-independent parents, 27 pairs of age-dependent parents, and a control group (33 normal parents) were studied. The total dermal index of Walker (dermal configurations in the diagnosis of mongolism) was used on each group. There were no noticeable differences in the indexes of parents of mongoloids and their offspring in cases of clinical and G-trisomy mongolism or between males and females. Age-independent mothers had higher dermal indexes than age-independent fathers (this was not true in age-dependent mothers). Age-dependent fathers had higher dermal indexes than control fathers, and slightly higher indexes than age-independent fathers. Parents of mongoloids had higher dermal indexes than controls; the fathers had a significantly higher dermal index. The fact that young mothers resemble their offspring more than young fathers can be explained by the hypothesis of inevitable nondisjunction with age-independent mothers, partially mosaic for G trisomy. The higher dermal indexes of mongoloid fathers could be caused by G-trisomy mosaicism. If there is a stable pool of chromosomal mosaicism in humans, difficulties will arise in preventing the occurrence of age-independent mongolism. (9 refs.) - *L.E. Bayliss.*

University of Colorado Medical Center
Department of Pathology and Pediatrics
Denver, Colorado 80220

1815 KUCERA, J. Age at walking, at eruption of deciduous teeth and response to ephedrine in children with Down's syndrome. *Journal of Mental Deficiency Research*, 13(2): 143-148, 1969.

Children with Down's syndrome were studied to determine the age of walking, the age of eruption of deciduous teeth and response to ephedrine; Down's syndrome children took longer to walk and tooth eruption was later than in normal children. Ephedrine acted as a tranquilizer and was valuable in the development of walking and speech, although side-effects were commoner in mongoloids than among normal children. During the period October 10, 1957 to September 30, 1967, 132 children with mongolism were examined at the Clinic for Congenital Malformations in Prague. Teething in mongoloid children took a mean of 12.46 months compared to a mean of 8.03 months for non-mongoloid SMR and a mean of 7.92 months for normal children. The average age at which a normal child starts to walk is about 12 months; in mongoloids, the average age at walking was 26.8 months. (4 refs.) - *F.J. McNulty.*

The Institute for the Care
of Mother and Child
Nabrezi Karla Marxe 157
Prague, Czechoslovakia

1816 SOLITARE, G.B. The spinal cord of the mongol. *Journal of Mental Deficiency Research*, 13(1):1-7, 1969.

Although earlier reports had noted that the spinal cord of the mongoloid was "never normal," neuropathological examination of the spinal cords of 4 mongoloids (CA 1 to 14 yrs) revealed no abnormalities. None of these patients displayed neurological deficits during life. Both grey and white matter appeared normal in structure and relationships. Spinal nerves and roots, axons, central canal, and columns of Clarke were all normal despite previous reports to the contrary.

Like the general population without evidence of neurological impairment, mongoloids without such clinical signs are also unlikely to have spinal cord lesions. (15 refs.) - *E.L. Rowan.*

Department of Pathology
Yale University School of Medicine
New Haven, Connecticut 06510

1817 GOLDIE, L., CURTIS, J.A.H., SVEDSEN, U., & ROBERTSON, N.R.C. Abnormal sleep rhythms in mongol babies. *Lancet*, 2(7536): 229-230, 1968.

The sleep patterns in 5 (3 small-for-dates) newborn mongoloid babies were similar to those in normal infants including similar physiological characteristics in non-REM sleep (less body movements, more regular and slower respiration and heart rate, and occurrence of sucking responses and spontaneous startles). There were distinct differences between REM and non-REM (eye movements being totally absent in the non-REM phase) sleep, and in EEG patterns between REM and non-REM in mongoloids when compared with controls. Differences in mongoloid children included longer non-REM time, more frequent body movements, different EEG patterns during non-REM sleep (less distinct bursts of episodic sleep activity which were less regular, of longer duration, and lower amplitude). (11 refs.) - *W.J. Klein.*

Nuffield Neonatal Research Unit
Institute of Child Health
Hammersmith Hospital
London W 12, England

1818 MORRIS, JULIAN. Chimpanzee with condition resembling human mongolism found for 1st time. *NIH (National Institutes of Health) Record*, 21(19):3, 6, 1969.

A female chimpanzee with some of the physical, genetic, and behavioral characteristics of Down's syndrome (including one extra chromosome) is the first reported non-human case of its type. The mongoloid-like chimpanzee is expected to be used in developing a strain of chimps for further study of Down's syndrome. (No refs.) - *V.R. Shaffer.*

No address

1819 Chimp's a model of mongolism. *Medical World News*, 10(20):26, 1969.

Jama, an infant chimpanzee at the Yerkes (Atlanta) Regional Primate Research Center, has characteristics of Down's syndrome including:49 chromosomes (with the extra chromosome located near the 22nd or 23rd pair); epicanthal folds; heart defect, slightly webbed feet, and overall retarded development. Such chimps may prove very valuable to researchers. (No refs.) - *J.M. Gardner.*

1820 CUENCA, CARLOS R., & *BECKER, KENNETH L. Klinefelter's syndrome and cancer of the breast. *Archives of Internal Medicine*, 12(2): 159-162, 1968.

A 63-year old man with Klinefelter's syndrome (determined by karyotype, buccal smear, and testicular biopsy) and gynecomastia since adolescence developed a ductal carcinoma of the breast. Five other cases of coexisting breast cancer and Klinefelter's syndrome have been reported. Gynecomastia was noted in 3 of these other cases and is generally found in 2/3 of patients with XXY sex chromosomes. The relationship of the extra X chromosome and breast cancer may be coincidental; however, the duration of gynecomastia and possible hormonal influences suggest that further investigation is necessary. Regardless of the etiology, the relationship is significant enough to warrant yearly breast examinations for all patients with Klinefelter's syndrome. (21 refs.) - *E.L. Rowan.*

*50 Irving Street Northwest
Washington, D.C. 20422

1821 DALY, J.J., HUNTER, H., & RICKARDS, D. F. Klinefelter's syndrome and pulmonary disease. *American Review of Respiratory Disease*, 98(4):717-719, 1968.

The relationship between pulmonary disease and Klinefelter's syndrome was analyzed in a study of 30 patients (CA 15 to 70 yrs) with chromatin-positive Klinefelter's syndrome. Five of the patients had been admitted to the hospital with respiratory difficulties, but the remainder were found in a sex chromatin survey of hospitals for MRs in Sheffield, England. Eighteen patients had chronic bronchitis, asthma, or bronchiectasis. Lung function data indicated minimal to moderate airway obstruction in 7 cases with 7 additional patients showing lung hyperinflation. Five patients with mosaicism had chronic

pulmonary disease. No relationship was noted between the incidence of gynecomastia and lung disease nor between IQ and pulmonary symptoms. (20 refs.) - *B. Bradley.*

Department of Medicine
Royal Hospital
Sheffield, England

1822 SKAKKEBAEK, N.E., PHILIP, J., & HAMMEN, R. Meiotic chromosomes in Klinefelter's syndrome. *Nature,* 221(5185): 1075-1076, 1969. (Letter)

Meiotic divisions were found in one (CA 28 yrs) of 4 Ss with Klinefelter's syndrome (XXY chromosome complement). Examination of testicular biopsy material from this S revealed 8 cells in diakinesis/metaphase I (2 contained 22 autosomal bivalents, an XX bivalent and a separate Y; 3 contained an XY bivalent) and 2 cells in metaphase II. Little evidence of XY, XXY mosaicism was found when mitotic metaphases prepared from peripheral blood cells were examined. (6 refs.) - *A. Huffer.*

Rigshospitalet
University of Copenhagen
Copenhagen, Denmark

1823 AHMAD, K.N., LENNOX, B., & MACK, W.S. Estimation of the volume of Leydig cells in man. *Lancet,* 2(7618):461-464, 1969.

Measurement of Leydig cell volume requires determination both of the proportion of Leydig cells in the testis and of testicular volume. The first can be measured by point-counting on a biopsy specimen, the second by 3-dimensional measurement of the testis during an open exposure biopsy. Trial on 100 necropsy testes showed the 3-dimensional method, assuming the testis to be an ellipsoid, to give an accurate measure of volume. Preliminary results on a small series of biopsies suggest that the normal Leydig cell volume is about 0.5-1.5ml/testis, and that the volume is normal in chromatin-negative Klinefelter's syndrome, very variable in XXY cases, and depressed in undescended testes. (10 refs.) - *Journal summary.*

Western Infirmary
Glasgow, W.1, Scotland

1824 RAKHALSKIY, YU. E., & SIROVSKIY, A.A. O Tipakh psikhkhcheskikh narushenii pri sindromakh Klainfel'tera i Shereshevskogo-Ternera u vzroslikh (The types of mental disorders in Klinefelter's and Shereshevsky-Turner syndromes of adults). *Zhurnal Nevropatologii i Psikhiatrii,* 69(3):407-410, 1969.

Fifteen Ss with chromosomal aberrations (7 of the XO type; 8 of the XXY type) were found to have mental disorders including psychopathic personality disorders, hallucinatory-delusional states, organic brain disorders, and a combination of schizophrenia and epilepsy. Schizophrenia in such cases is usually periodic and is expressed in hallucinatory-paranoid and catatonic symptoms. (9 refs.) - *M.D. Nutt.*

No address

1825 COURT BROWN, W.M. Sex chromosome aneuploidy in man and its frequency, with special reference to mental subnormality and criminal behavior. In: Richter, G.W., & Epstein, M.A., eds. *International Review of Experimental Pathology, Volume 7.* New York, New York, Academic Press, 1969, Chapter 2, p. 32-97.

An individual with a sex chromosome aneuploidy usually comes to attention because of MR, subfertility, or aberrant behavior. Males with an extra X chromosome occur in a ratio of 1.7/1,000 live-born males (0.4/1,000 of these are XY/XXY mosaics) and females with an extra X occur about 1.1/1,000 live-born females. Only 0.3/1,000 live-born females have an XO chromosome complement as this anomaly is associated with a high rate of intrauterine death and later with a high rate of infant mortality. An extra X chromosome is associated with high grade MR (IQ > 50) in both sexes. Although the sex ratio for MR is probably the same for all age groups, it is significant that most males with aneuploidy are not admitted to hospitals for the MR until adolescence or later when antisocial behavior brings them to the attention of the courts. Behavioral disorders are also present in XYY males although the mechanism is unclear. Further study of disorders associated with sex chromosome aneuploidy may aid in understanding the mechanisms of development of intelligence, sexual maturation, and behavioral disturbances associated with extra X chromosomes. (86 refs.) - *E. L. Rowan.*

1826 HIENZ, HERMANN A. YY-syndrome forms. *Lancet*, 1(7586):155-156, 1969. (Letter)

Four different clinical syndromes are manifested in Ss with the XYY chromosomal aberration: tallness with normal IQ, no antisocial behavior, no malformations, and normal sexual development; tallness with MR, antisocial behavior, no malformations, and normal sexual development; tallness with normal IQ or slight MR, no antisocial behavior, no malformations, and abnormal sexual development; and tallness with either normal intelligence or MR, no antisocial behavior, various body malformations, and genital malformations. Tallness is consistently found in all Ss with the XYY syndrome; however, other manifestations are obviously variable. This disorder needs much further study, especially as to the part structural differences in each Y chromosome plays in the development of the syndrome. (8 refs.) - *A. Huffer.*

Department of Pathology
Klinikum Essen
Ruhr University
43 Essen, West Germany

1827 DALY, RICHARD F. Neurological abnormalities in XYY males. *Nature*, 221(5179): 472-473, 1969.

Neurological data for 12 XYY males indicate that neurological deficits, especially motor dysfunctions, may provide a useful diagnostic procedure for identification of this condition. Male patients, 6 feet or more in height, from 4 maximum security hospitals and 2 institutions for the MR had chromosome analyses. Ten XYY males in maximum security hospitals and one patient in a hospital for the MR were found. An additional case, a school boy, was referred. Only one of the 12 patients used in this analysis did not have abnormal neurological signs and 10 were considered to have these findings as a result of chromosomal imbalance. One patient was omitted due to prolonged and excessive alcoholism. The association of body asymmetries with neurological abnormalities should lead to more detailed brain investigations of XYY males. (7 refs.) - *B. Bradley.*

University of Wisconsin Medical Center
Madison, Wisconsin 53706

1828 PRICE, W.H. Sex determination, mental subnormality, crime and delinquency, in males. *Journal of Mental Subnormality*, 15, Part I(28):37-44, 1969.

Nuclear sexing surveys have established the frequency of sex-chromatin positive males in the normal population as from 1.7 to 2.3/1,000; whereas, surveys in hospitals for the MR have found a frequency of 9.4/1,000. Karyotyping has shown that in these hospital populations, a 47,XXY constitution is associated with mild MR, as is a 48,XXXY; whereas, a 49,XXXXY complement is associated with SMR and 46XY/47,XXY mosaicism has no higher risk of MR than does the normal population. Antisocial behavior is often associated with an extra X chromosome and MR but not necessarily with an extra X and normal intelligence. An extra Y chromosome occurs only once in 1,000 births but has been found in up to 12% of tall (over 6 feet) mildly MR prisoners. A typical male phenotype, passive inadequacy, and episodes of impulsive behavior are characteristic. Although the association of extra sex chromosomes with MR and behavior disorders has been established, the mechanism is still unclear. (27 refs.) - *E.L. Rowan.*

Western General Hospital
Edinburgh 4, Scotland

1829 CARAKUHANSKY, GERSON, NEU, RICHARD L., & GARDNER, LYTT I. XYY with abnormal genitalia. *Lancet*, 2(7578):1144, 1968. (Letter)

The clinical study given, along with 12 other published cases, of a male with XYY karyotype, hypogonadism and dysplastic genitalia suggests that these cases should not be placed in the same class as aggressive YY syndrome males and that what appears to be an extra Y chromosome may be of different material in the 2 groups. (11 refs.) - *E.F. MacGregor.*

Upstate Medical Center
State University of New York
Syracuse, New York 13210

1830 New aspects of human genetics. *British Medical Journal*, 2(5649):66-67, 1969.

During the last 7 years there have been many significant advances in the field of human genetics. The chromosomal anomalies of E trisomy, D trisomy, the *cri-du-chat* syndrome, and the XYY syndrome have been delineated clinically and cytogenetically. Multiple allelism is a common situation as is a failure

to transport amino acids (rather than a failure of synthesis) in inborn errors of metabolism. The mapping of human autosomes is progressing with the help of the computer. Work in the inheritance of some conditions suggests a polygenic predisposition with a threshold. (2 refs.) - *E.L. Rowan.*

1831 KAPLAN, ARNOLD R. The use of cytogenetical data in heredity counseling. *American Journal of Mental Deficiency*, 73(4): 636-653, 1969.

Valid genetic counseling in cases of chromosomal abnormality requires familiarity with current reports and a competent karyotypic analysis. Etiologically, meiotic nondisjunction results in aneuploidy while mitotic errors during embryogenesis produce mosaicism. The latter obviously has less risk of recurrence. Although aneuploidies of large autosomes are generally not viable, deletions, translocations, and duplications may occur in these as well as in the smaller autosomes. Not only must the karyotype of the proband be determined, but the parents must also be examined cytogenetically. In this regard culture of leukocytes may not be as informative as gonadal cell culture. Factors such as maternal age, family history, and exposure to mutagenic agents must also be considered. Although determination of risk is essentially a statistical problem, techniques such as tissue culture of fetal cells from amniotic fluid may provide early confirmation of anomalies. (117 refs.) - *E.L. Rowan.*

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1832 STEINBERG, ARTHUR G., & BEARN, ALEXANDER G. eds. *Progress in Medical Genetics, Volume VI*. New York, New York, Grune & Stratton, 1969, 288 p. $16.75.

The advancement of the knowledge of human chromosomes during the past 12 years, its relation to clinical medicine, and genetic control mechanisms are reviewed. The roles of chromosomes in congenital defects, thyroid diseases, autoimmunity, and organ transplantation are of special interest. The genetic control mechanism in *Escherichia coli* and its applicability to a diploid organism such as man are also discussed. This book should be of interest to geneticists, medical researchers, and physicians. (1,217 refs.) - *L.S. Ho.*

CONTENTS: Chromosomal Abnormalities in Clinical Medicine; Genetics and the Gastrointestinal System; The Genetics of Thyroid Disease; Genetic Aspects of Autoimmunity; The Application of Bacterial Genetics to the Study of Human Genetic Abnormalities; Histocompatibility in Man--Genetic and Practical Considerations; The Genetics of Intestinal Carbohydrate Intolerance.

1833 CARR, D.H. Chromosomal abnormalities in clinical medicine. In: Steinberg, Arthur G., & Bearn, Alexander G., eds. *Progress in Medical Genetics Volume VI*. New York, New York, Grune & Stratton, 1969, Chapter 1, p. 1-61.

Sex chromosome abnormalities (such as Klinefelter's syndrome in males, X-polysomy in females), gonadal dysgenesis, mongolism, 18-trisomy, 13-trisomy, and deletions, ring formations, and translocations of chromosomal materials are extensively reviewed. Most 47,XXY males are infertile, and at least 25% of them are MR. About 20% of the XXX females are MR, but are free of serious physical defects. Various chromosomal varients are associated with gonadal failures in phenotypic females; XO gonadal dysgenesis is related short stature, MR, and defective ovarian development. The 46,XY abnormality is related to testicular feminization, gonadal dysgenesis, and male pseudohermaphroditism. Trisomy-21 is the commonest chromosome anomaly compatible with live birth; however, the translocation associated with the disease is usually a *de novo* event in the affected progeny. The mental ability of this group depends on the degree of mosaicism and varies from normal to extremely retarded. Trisomy-18, trisomy-13, and *cri-du-chat* are associated with many congenital defects. The relationship between chromosomal abnormalities and malignancy is not clear; however, chronic myeloid leukemia is frequently correlated with deletion of the long arm in group G chromosomes. (343 refs.) - *L.S. Ho.*

1834 TJIO, JOE-HIN, *PAHNKE, WALTER N., & KURLAND, ALBERT A. LSD and chromosomes: A controlled experiment. *Journal of the American Medical Association*, 210(5):849-856, 1969.

Administration of pure LSD in a research setting was without significant effect on the rate of chromosomal aberrations in 72-hour cultures of lymphocytes. A group of 32 hospitalized alcoholic or neurotic patients received a low dose (50 µg in 11 patients) or a high dose (250 to 450µg) of LSD after blood cultures were taken. Repeat cultures were

made one to 10 days after ingestion, all were prepared using macroculture techniques, and at least 200 metaphases were evaluated from each sample. Intercurrent viral infections and drug therapy did not significantly influence the results. Another group of 5 users of "black market" LSD showed no change after experimental ingestion and their pretest rate of breakage was similar to that of controls. Follow-up of 8 experimental Ss 2 to 15 months after ingestion showed a "normal" aberration rate. Studies which show significant effects may not have been properly controlled for pre-ingestion breakage rates, intercurrent viral infections, other drug ingestions, culture techniques, or sufficient analyses to overcome what are apparently normal variations in the breakage rate. Although most work to date has been on cultured leukocytes, the effects of LSD on germinal cells are as yet undetermined. (27 refs.) - *E.L. Rowan.*

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Baltimore, Maryland 21228

1835 HIRSCHHORN, KURT. LSD and chromosomal damage. *Hospital Practice*, 4(2):98-103, 1969.

Both *in vitro* and *in vivo* studies suggest that lysergic acid diethylamide (LSD) causes chromosomal damage in approximately 75% of its users. In *in vitro* studies LSD inhibited mitosis, caused 2 to 4 times more chromosome breakage than found in control human leukocytes, and fostered radical chromosomal changes such as dicentric chromosomes and exchange figures. *In vivo* studies showed 3 times as many chromosomal abnormalities in LSD users as in controls. Children exposed to LSD *in utero* have shown a high rate of chromosome breakage but most have appeared normal. The potentiating effects of other hallucinogens have not been clearly established. The real danger in chromosomal damage appears not to be to the drug user himself but to the subsequent generations. (No refs.) - *E.L. Rowan.*

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MEDICAL ASPECTS--MISCELLANY

1836 STEVENSON, ALAN C., & BOBROW, MARTIN. Determinants of sex proportions in man, with consideration of the evidence concerning a contribution from X-linked mutations to intrauterine death. *Journal of Medical Genetics*, 4(3):190-221, 1967.

Prezygotic and intrauterine factors are both responsible for sex ratios in man; the primary sex ratio of zygotes is subsequently modified by peri-implantation losses and abortions. Therefore, accurate data regarding the sex ratio is obtained only from late fetal death and live births. Meiosis influences the ratio of Y and X gametes so that a true 1:1 ratio does not occur. Futhermore, sex chromosome aneuploidy causes early pregnancy losses and, thereby, influences the sex ratio. Because of the multitude of influencing factors, conclusions drawn from a group with unusual offspring or sex ratios, such as irradiated parents, must be taken with care. Experimental work with animals indicates that genetic mutations act early to cause fetal death and contribute little to later intrauterine death. Various studies have calculated an excess of male deaths over female which has been attributed to an X-linked mutation. Since the mutation rate will vary with the rate of male mortality, estimates of a total X-chromosome mutation rate cannot be accurately made from one generation. When considering mutation rates, the concept of equilibrium-gene-frequency must be assumed, as well as the belief that a late fetal mortality factor affecting males does not operate earlier in pregnancy. Present evidence indicates that socioeconomic status and medical care affects male mortality; when these are good, the mortality rates for male and female fetuses are identical. Also, the mutation rate calculated by 3 generation approaches appears too high, hence no intrauterine X-linked mutation factor responsible for male mortality has yet been clearly defined or measured. (143 refs.) - *E. Gaer.*

Medical Research Council
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388-623 O - 70 - 9

1837 COUREY, NORMAN G., STULL, ROBERT L., FISHER, BEN, STULL, CAROL G., & LUNDSTROM, PAULA. Urinary estriol excretion in high-risk pregnancy. *Obstetrics and Gynecology*, 34(4):523-529, 1969.

Of 58 pregnant women in the high-risk pregnancy category, 17, who gave birth to dead babies, had a lower urinary estriol output during the entire last trimester than those who gave birth to viable babies. The decreased estriol excretion is, thus, an indication of fetoplacental dysfunction. A measurement of 24-hour urinary estriol excretion may be useful in determining Ss in the region between critical and safe levels. (18 refs.) - *L.S. Ho.*

Deaconess Hospital of Buffalo
1001 Humboldt Parkway
Buffalo, New York 14208

1838 JAMES, WILLIAM H. Stillbirth and birth order. *Annals of Human Genetics*, 32 (Part 2):151-162, 1968.

Statistical studies of the effect of birth order on stillbirth indicate that the observed rise in stillbirth with number of births may be due to an association of stillbirth-proneness with fertility and,where specific pathologic types of stillbirth occur, recurrence rates relate to that pathology. Obstetrical data of the Kauai Pregnancy Study were used; 6,039 women reported 27,528 pregnancies. Fetal loss after 5 months was counted as stillbirth; early loss was ignored in birth order determination. Statistical formulae were constructed using R^J= proportion of affected cases in the jth rank. A total of 632 stillbirths in 498 sibships was found. There was a trend toward increased stillbirth with increased birth rank, but much variability was noted. It appeared the rise in R^J after the third birth rank does not reflect a real birth order or maternal age effect. Some sibships showed negative and others positive birth order effect. Pathologic types of stillbirth were characterized by higher recurrence rates related to the pathology. In a few cases there appeared to be higher risk at both ends of the birth order yielding a curvilinear effect. The most notable finding was that stillbirth-prone women are more fertile than other women. Socioeconomic factors appear to operate; the lower classes tend to have earlier marriages, more pregnancies, and a higher risk of stillbirth and other fetal loss. Apparently there was no relation of stillbirth to reproductive compensation. (13 refs.) - *C.A. Rizvi.*

Galton Laboratory
University College
London, England

1839 JONES, T.C. Mammalian and avian models of disease in man. *Federation Proceedings*, 28(1):162-169, 1969.

An animal species in which a natural disease can be evoked on a predictable basis and which mimics certain aspects of human disease should be selected for comparative pathological study. Such animal models have not been fully exploited. Among the 94 nonneoplastic animal disease models are: epilepsy, cystinuria, amaurotic idiocy, and Ehlers-Danlos syndrome in dogs; erythroblastosis fetalis in horses; anencephaly in hamsters; cerebral palsy in rhesus monkeys; and hydrocephalus in cattle, dogs, and mink. (266 refs.) - *L. S. Ho.*

New England Regional Primate
Research Center
Harvard Medical School
Boston, Massachusetts 02115

DEVELOPMENTAL ASPECTS--PHYSICAL

1840 CAMPBELL, DONALD. E. Circulorespiratory endurance of three age groups of institutionalized trainable mentally retarded males. *Training School Bulletin,* 66(2):60-65, 1969.

This investigation sought to evaluate circulorespiratory endurance of 3 age groups of institutionalized TMR males by means of endurance quotient. Three physical performance items, the 25-yard run for time, the 300-yard run for time, and the standing broad jump, were administered the 138 Ss. The time for the 300-yard run and the extended time for the 25-yard run were used as criterion measures to obtain the endurance quotient. This derived measure and the standing broad jump score were subjected to a single classification analysis of variance for 3 S groups. The conclusion is advanced that the circulorespiratory endurance of institutionalized TMR males does not vary by levels of chronological development. (12 refs.) - *Journal abstract.*

Oregon State University
Corvallis, Oregon 97331

1841 MASSENGILL, RAYMOND M., JR. Comparison of the swallowing patterns of mental retardates and normals. *American Journal of Mental Deficiency,* 73(6):950-955, 1969.

This study examined and compared the swallowing pattern of normal and MR Ss regarding: total swallowing time for a Microtrast bolus; spilling effect of the bolus; stopping of the bolus; time required for the bolus to reach the palatopharyngeal area; and time required for the bolus to move from the palatopharyngeal area to the pharyngoesophageal junction. The significant difference found between the normal and MR Ss on the first 4 of the 5 parameters measured suggests that such a procedure might possibly prove advantageous in early recognition of MR. (3 refs.) - *Journal abstract.*

Duke University Medical Center
Durham, North Carolina 27706

1842 SCHEIN, JEROME D., & SALVIA, JOHN A. Color blindness in mentally retarded children. *Exceptional Children,* 35(8):609-613, 1969.

Two recent studies contradict the traditional finding that color blindness in MR individuals is of approximately the same incidence and male/female ratios as in normals. These studies demonstrate a significantly greater incidence of color blindness among the retarded and found little difference between males and females (the general finding is that males exceed females by 9 times). One possible reason for these discrepant findings is that failure on color blindness tests can be attributed to intellectual handicaps and not to actual deficits in color vision. Reanalysis of the data from one study indicated a significant interaction ($\chi^2 = 16.44$, $p<.001$) between grade level and incidence of color blindness, suggesting the possibility that factors other than defective vision account for failure on the tests. There is a clear need for more research on the detection of color blindness and on the relevance of color to learning. (13 refs.) - *J. M. Gardner.*

College of Education
University of Cincinnati
Cincinnati, Ohio 45221

1843 HODGSON, WILLIAM R. Auditory characteristics of post-rubella impairment. *Volta Review,* 71(2):97-103, 1969.

Children with hearing impairments due to the effects of rubella can be helped with hearing aids and can tolerate amplified sounds as well as any other group. Twenty children with bilaterally equal and symmetrical hearing losses were tested with pure-tone threshold audiometry and 17 children were tested with sound field audiometry. The audiometry performances of these Ss were no different from those of other Ss with sensorineural loss. Ss fitted with hearing aids have had good tolerance. A girl (CA 4 yrs) with a bilateral loss, whose mother had rubella, has worn a body-borne hearing aid for 18 months. She is attending school and doing

satisfactory work. A boy (CA 32 mos) with a maternal rubella hearing loss has participated in a visual and auditory training program, tolerates a hearing aid, and now has a 22-decibel speech-awareness threshold. A girl (CA 9 yrs), with a profound hearing loss attributed to rubella, has bilaterally equal thresholds. She has worn a powerful conventional hearing aid and is enrolled in classes for deaf children and doing well. (8 refs.) *V. G. Votano.*

University of Kansas Medical Center
Kansas City, Kansas 66103

1844 ELDRIDGE, ROSWELL, BERLIN, CHARLES I., MONEY, JOHN W., & McKUSICK, VICTOR A. Cochlear deafness, myopia, and intellectual impairment in an Amish family. *Archives of Otolaryngology,* 88(1):49-54, 1968.

Four of 7 siblings in an Amish family display a new syndrome of deafness and myopia with intellectual impairment. Deafness appears cochlear in origin, and intact vestibular function suggests that it is genetic rather than acquired. Marked sensory deprivation accounts for a great deal of intellectual immaturity, and MR is probably an inappropriate diagnosis for these children. Although the parents are not directly consanguineous, there are 4 common ancestors 7 and 8 generations earlier (inbreeding coefficient 1.56%). This indicates a simple autosomal recessive mode of inheritance. (22 refs.) - *E. L. Rowan.*

National Institute of Neurological
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National Institutes of Health
Bethesda, Maryland 20014

1845 WALDON, EDGAR F., ed. *Differential Diagnosis of Speech and Hearing Problems of Mental Retardates.* Washington, D. C. Catholic University of America Press, 1968, 264 p. $4.50.

The purpose of the 1966 Workshop of Differential Diagnosis of Speech and Hearing Problems of Mental Retardates was to train speech and hearing therapists and audiologists. In an attempt to provide a broad understanding of MR, the medical orientation of complete diagnosis and a team approach to diagnosis were emphasized. The Workshop participants also examined different sources for collecting medical information, trained speech pathologists in diagnostic procedures, introduced audiologists to new audiometric techniques for testing MRs, and explored research potential in various disciplines. The 12 selected papers include: the areas of neurology and pediatrics, audiology, psychology, speech and language, and social work. This book should be of interest to audiologists, speech pathologists, pediatricians, psychologists, neurologists, special educators, and social workers. (128 refs.) - *J. K. Wyatt.*

CONTENTS: The Importance of Medical Diagnosis in Understanding a Mentally Retarded Child (Calcagno); Diagnostic Evaluation of Mental Retardation (Paine); The Use of Developmental Tests As Diagnostic Tools in Mental Retardation (Haka); Electrophysiologic Technics for Testing the Hearing of Mentally Retarded Children (Goldstein); Operant Conditioning Audiometry with Mentally Retarded Children (Lloyd); Techniques for Determining Hearing Thresholds of Mentally Retarded Children (Waldon); Psychological Testing with Brain-Injured Retarded Children (Bortner); Psychological Evaluation of Perceptual Deficit (Bortner); A Study of Articulation Tests Suitable for Use with Institutionalized Mentally Retarded Children (Blanchard); Diagnostic Patterns of Articulation (Blanchard); Methods of Studying Language of Retarded Children (Schiefelbusch); The Role of the Social Worker in Differential Diagnosis of the Mentally Retarded Child (Beck).

1846 FIELDS, RUBY D. Physical abilities of the mentally retarded child. *Physical Therapy,* 49(1):38-46, 1969.

The physical abilities of 100, MR children (CA 5 to 10 yrs) were measured by a testing instrument which consisted of items taken from the Bayley and Gesell scales. The tests included the areas of head control, trunk control, sitting balance, and creeping and covered the developmental period from 1 month to 6 years. Test scores were converted into a motor age (MA) or motor quotient (MQ). IQ and MQ were significantly related ($r = .77$, $p < .01$), as were scores for fine and gross motor performance ($r = .67$, $p < .01$). Mean MQs for boys and girls were 49 and 54, respectively, and the mean MQ for the total group was 51. (2 refs.) - *J. M. Gardner.*

Crippled Children's Division
University of Oregon Medical School
Portland, Oregon 97201

1847 WILLSON, M. ANN. Use of developmental inventory as a chart of progress. *Physical Therapy*, 49(1):19-32, 1969.

The Inventory of Development is a developmental schedule intended for use by physical therapists in the evaluation of normal and handicapped children. It evaluates 4 major areas: gross and fine motor movement; communication; and personal-social behaviors. The inventory can be administered over a series of sessions and takes approximately one hour to complete. The major use of the inventory is as a chart of progress, with a child's growth in each of the areas represented in graphic form. The inventory is modeled after the Gesell schedules; however, it does not provide a direct measure of treatment effectiveness because the influences of physiological maturation are not separated out. (47 refs.) - *J. M. Gardner.*

Division of Maternal, Child and
Crippled Children's Services
Delaware State Board of Health
Dover, Delaware 19901

1848 ROBINSON, ARTHUR. Sex differences in development. *Developmental Medicine and Child Neurology*, 11(2):245-246, 1969.

There are 2 possible explanations for the consistent finding that males are not as durable as females in terms of morbidity and mortality. First, females may be at an advantage because they have 2 X-chromosomes which have numerous functions unrelated to reproduction (sensitivity to vitamin D, color blindness); this could result in increased resistance to external conditions. Second, the mother may become sensitized to products of the fetus' Y-chromosome and try to reject them, thus creating a hazardous environment for the male fetus. Both these hypotheses should be investigated. (5 refs.) *J. M. Gardner.*

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4200 East Ninth Avenue
Denver, Colorado 80220

1849 SINGER, JUDITH E., WESTPHAL, MILTON, & NISWANDER, KENNETH. Relationship of weight gain during pregnancy to birth weight and infant growth and development in the first year of life: A report from the Collaborative Study of Cerebral Palsy. *Obstetrics and Gynecology*, 31(3):417-423, 1968.

The outcome of 10,000 infants of mothers who gained weight according to 4 categories (<16 lbs, 16-25 lbs, 26-36 lbs, and >36 lbs) was measured by an 8-month motor score, 8-month mental score, 12-month neurological findings, and 12-month weight and height. The population was divided into normal and abnormal groups for each outcome variable. χ squares were computed between the weight-gain groups and the birth-weight and/or length of gestation groups. Data indicated that greater maternal weight-gain independent of gestation length produced greater infant birth-weight, less incidence of prematurity (3% when maternal weight-gain was >36 lbs as opposed to 15.8% when the maternal weight-gain was <16 lbs), and better infant growth and performance. Mothers with <16 lbs weight gain had the highest percentage of children with abnormal growth and performance patterns (12.5% mental, 11.3% motor, 10.1% height, and 8.8% neurological); mothers with >36 lbs weight gain had the lowest percentage of infants with abnormalities (7.5% mental, 5.2% motor, 7.3% height, 6.2% weight, and 7.1% neurological). The practice of keeping maternal weight-gain to a minimum to reduce infant prematurity, morbidity, and mortality should be further evaluated. (23 refs.) - *V. G. Votano.*

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Buffalo, New York 14222

1850 HUNTER, H. A controlled study of the psychopathology and physical measurements of Klinefelter's syndrome. *British Journal of Psychiatry*, 115(521):443-448, 1969.

Sixteen chromatin-positive males found in hospitals for the MR were evaluated physically and psychologically. XXY MR men (12) tended to be a little taller but weighed less than controls. XXYY men were tall and had long legs and increased body measurements. Psychological assessment showed that the Klinefelter group were irritable (verbally, but not physically aggressive), lacked drive, and had poor interpersonal relationships. Over 1/2 the group had no real interest in sex, and none had strong heterosexual inclinations. Ten of the men had neurological abnormalities, and 6 of these had extrapyramidal signs. The primary insult to the nervous system in this sex chromosome aneuploidy seems to be at the cortical level, but deeper structures may also be involved. (22 refs.) - *E. L. Rowan.*

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Balderton, England

1851 DAYTON, DELBERT H. Early malnutrition and human development. *Children*, 16(6): 210-217, 1969.

Malnutrition early in life is one of many factors which may adversely affect both physical and mental growth and development. Nutritional deficiencies apparently affect the proliferation of cells in the developing central nervous system, and these changes are probably not reversible. Critical periods occur in maternal, fetal, and infant development, and longitudinal studies are needed to determine the consequences of malnutrition at each stage. More specific biochemical and anthropometric tests are needed to assess physical status. Studies of children in underdeveloped areas of the world suffer from unreliable tests, lack of relevant standards, and an inability to control for significant factors such as infection and psychosocial deprivation. The solution to the problem of malnutrition is more than the provision of food. Indigenous sources of protein must be exploited, and people must be educated as to their value. There is probably no area of the world which is free of malnutrition, and there should be more cooperation among nations to overcome this self-perpetuating problem. (23 refs.) - *E. L. Rowan.*

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1852 MONCKEBERG, FERNANDO. Effect of early marasmic malnutrition on subsequent physical and psychological development. In: Scrimshaw, Nevin S., & Gordon, John E., eds. *Malnutrition, Learning, and Behavior*. Cambridge, Massachusetts, Massachusetts Institute of Technology Press, 1968, p. 269-278.

Fourteen children with severe marasmic malnutrition which had begun during the first 1 to 5 months of life were treated for long periods and then followed as outpatients. At the age of 3 to 6 years, all were clinically normal with weights above the third percentile and heights below the third percentile. Their average IQ was 62, with all scores below 76. Brain damage in infancy appears to be permanent until at least age 6, despite improved nutrition. A subnormal value for head circumference was found in 2,300 infants and preschool children who became malnourished during the first months of life. In a study of the psychological development of 153 preschool children from 3 social groups (middle class, adequately nourished lower class, and malnourished lower class) development was normal for all but the malnourished group. Early malnutrition seems to restrict genetic potential for physical and psychological development and socioeconomic factors strongly affect mental development. (21 refs.) *M. G. Conant.*

1853 DOBBING, JOHN. Effects of experimental undernutrition on development of the nervous system. In: Scrimshaw, Nevin S., & Gordon, John E., eds. *Malnutrition, Learning, and Behavior*. Cambridge, Massachusetts, Massachusetts Institute of Technology Press, 1968, p. 181-202.

Pigs undernourished from 2 weeks of age until one year were rehabilitated for 2 years and then compared with normal 3-year-old pigs. Undernutrition delayed brain growth to a lesser extent than body growth; however, the weight of the brain and its constituents never attained a normal level. All lipids normally found at adult concentrations at one year of age showed normal values in rehabilitated 3-year-old pigs, while cerebroside and cholesterol, which normally increase during the first 3 years, showed deficits. Similar results observed in undernourished rats support the theory that the effects of malnutrition on the brain depend on the timing of undernutrition. Comparatively mild restrictions during a period of rapid growth may have permanent effects, and the different processes involved in brain growth and development may have their own vulnerabilities. (23 refs.) - *M. G. Conant.*

DEVELOPMENTAL ASPECTS--MENTAL

1854 BARCLAY, A. Longitudinal changes in intellectual and social development of non-institutionalized retardates. *American Journal of Mental Deficiency*, 73(5):831-837, 1969.

This study investigated longitudinal changes in intellectual and social development among young noninstitutionalized retardates. Chronological age largely accounted for changes in intellectual and social maturity, but at earlier ages, age increase did not entirely account for changes in social maturity. At later ages, observed asymptotic levels of intellectual and social functioning suggested that while absolute increments in mental age and social age do occur, the rate is slow. The occurrence of absolute increments in mental and social age is, however, offset by faster rates of chronological age increments, resulting in asymptotic levels of intellectual function reflected in derived measures such as the IQ and SQ. (11 refs.) - *Journal abstract.*

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1855 JENSEN, ARTHUR R., & ROHWER, WILLIAM D., JR. Mental retardation, mental age, and learning rate. *Journal of Educational Psychology*, 59(6):402-403, 1968.

Zigler's theory that rate of learning is determined by MA and not IQ is examined in the light of experimental evidence. Two studies using normal school children (IQ 105) matched with institutionalized young adult retardates of approximately the same MA, showed that the average learning rates of retardates on serial and paired-associate lists were significantly lower than those of normal Ss and that the standard deviation of learning scores in the retarded group was larger than in the normal groups. Socioeconomic status was also involved in that low socioeconomic status children showed consistently and significantly faster rates of paired-associate learning than middle socioeconomic status children. (8 refs.) *M. G. Conant.*

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1856 ROHWER, WILLIAM D., JR., & *JENSEN, ARTHUR R. A reply to Glass. *Journal of Educational Psychology*, 60(5):417-418, 1969.

Glass' criticisms of the methods used by the authors to reach their conclusion concerning the relationship of MA and IQ to learning rate include the obstacles inherent in attempting to effect complete matching of 2 samples on all but one variable (IQ), and the strong possibility that the findings can be attributed to regression effects. Data from one experiment were analyzed by contrasting the difference between 2 samples matched on MA but differing in IQ with the difference between 2 samples matched in IQ but differing in MA. MA differences were associated with a smaller variance in learning rate than were found for IQ differences. As to the second criticism, analysis of the methods of sample selection used indicated that if the results were confounded by a regression effect, the direction of that effect would underestimate the magnitude of difference between the normal and retarded samples. The data support the original conclusions. (5 refs.) - *M. G. Conant.*

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1857 GARDNER, JAMES M., SOLOMOWITZ, STANLEY, & SAPOSNEK, DONALD T. Trends in learning research with the mentally retarded. Paper presented at the second annual meeting of the Gatlinburg Conference on Mental Retardation, Gatlinburg, Tennessee, March, 1969. Mimeographed.

A comprehensive search of the literature on learning with the MR over the last 50 years revealed a total of 856 articles. Trends in the research were noted. Learning was a relatively small area until the mid-1950's. At this time, there was a dramatic increase in the number of publications which continued until the mid-1960's and then leveled off. Additional findings were that: the only subarea to show a continuous yearly increase was applied behavior change; 50% of the articles appeared in journals concerned primarily with

MR; and an increasing proportion of articles in the *American Journal of Mental Deficiency* have been devoted to learning in recent years. (11 refs.) - *J. M. Gardner.*

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1858 PAULSON, DENNIS G., ORLANDO, ROBERT, & SCHOELKOPF, ANN M. *Experimental Analysis and Manipulation of Auditory Generalization in Three Developmental Retardates by Discriminated-operant Procedures.* IMRID (Institute of Mental Retardation and Intellectual Development) Papers and Reports, 4(13):1-52, 1967.

The process of generalization was examined in 3 moderately retarded institutionalized boys (CA 10-14 yrs). The Ss were shaped to multiple schedule performance through successive approximations. High and low frequency tones (3,915 and 172 decibels) were discriminative stimuli for not responding, and a middle range tone (1,455 decibels) was the stimulus for responding. Reinforcement ratio requirements were gradually increased during the middle tone period and were interspersed with periods when no reinforcement was available. The insertion of intermediate range tones provided a test for generalization. All Ss demonstrated little generalization. Various attempts to modify the generalization gradients indicated a high resistance to change. The problems of poor generalization and resistance to change present learning problems to retarded populations. (13 refs.) - *J. M. Gardner.*

1859 TOBIAS, JACK. *The Relationship of Cognitive Patterns to the Adaptive Behavior of Mentally Retarded Adults.* New York, New York, Associated Educational Services, 1968, 125 p.

Observable and measurable differences in the adaptive behavior of 100 male EMR adults (IQ range 47-88) were related to corresponding differences in measures of field-articulation. Ss were trainees who were either enrolled in, or had completed a vocational training and rehabilitation program. Data collection instruments included the Wechsler Adult Intelligence Scale, Human Figure Drawings-Good-enough Scale, Porteus Mazes, Bender-Gestalt, Children's Embedded Figures Test, Wide Range Achievement Test, Peabody Picture Vocabulary Test, and a structured interview. Factor analysis of test and interview intercorrelations identified an analytic or perceptual organization factor, a behavior factor, a verbal factor, and a social relatedness factor. Ss were clearly classified into categories of high analytic-low verbal comprehension, low analytic-high verbal comprehension, and relatively equal analytic and verbal comprehension. A survey of employment status one year after testing revealed that Ss who demonstrated an analytic style were more likely to be rewarded with wages and treated like independent adults, and were able to produce more and learn faster than other Ss. High analytic Ss did not surpass Ss with strong verbal comprehension in all types of employment and did not have special advantages over the other Ss in social relationships. High verbal-comprehension Ss were more likely to succeed in a school environment. These data indicate that the relationship between the development of verbal skills and the development of "analytic style" or field-independence is limited and that MRs demonstrate different patterns of strengths and weaknesses in these areas. (39 refs.) - *J. K. Wyatt.*

CONTENTS: Review of the Problem; Purpose and Design of the Study; The Subjects in the Training Center and Sheltered Workshop; Results; Illustrative Case Materials; Implications.

1860 McMANIS, DONALD L. Conservation of mass, weight, and volume by normal and retarded children. *American Journal of Mental Deficiency,* 73(5):762-767, 1969.

Ninety normal and 90 retarded Ss, matched for MA between 5 and 10-11, were tested for conservation of mass, weight, and volume of clay using Piaget's "sausage" experiment. The results showed conservation to be MA-related and in the difficulty order of mass, weight, and volume, although reversals in order occurred for some Ss. Normals generally had higher mean conservation scores than retardates, but their MA-placement for the tests by percentage of Ss succeeding (70%) corresponded. Prediction responses were found to be poor indicators of conservation for low MA Ss. (5 refs.) - *Journal abstract.*

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1861 STEARNS, KATHYRN, & BORKOWSKI, JOHN G. The development of conservation and horizontal-vertical space perception in mental retardates. *American Journal of Mental Deficiency,* 73(5):785-790, 1969.

The purpose of the experiment was to replicate a series of Piaget's tests concerning the

development of the conservation of equivalence and horizontal-vertical space perception with a group of 116 institutionalized MRs. Piaget's theories were given general support in that the cognitive development of MRs seems to follow the same sequence as that of normals, simply doing so more slowly. MA was more strongly related to this development than was CA. A water task (continuous quantity) was found to be more difficult than either block or marble tasks (discrete quantities). The development of the concept of the vertical paralleled that of the horizontal. (10 refs.) - *Journal abstract.*

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1862 ACHENBACH, THOMAS M. Conservation of illusion-distorted identity: Its relation to MA and CA in normals and retardates. *Child Development,* 40(3):663-679, 1969.

For each of the properties of length, area, and volume, 4 conservation tasks were devised which employed optical illusions to create conflicts between the real and phenomenal sizes of stimuli. The tasks did not require additivity, transitivity, numeration, conservation of equivalence, or advanced verbal expression, but they did provide for ascertaining S's spontaneous verbal grasp of the relevant dimensional concepts. Groups of normals and nonorganic retardates similar in sex, race, experimental order, and MA did not differ significantly in number of nonconservation responses or in levels of conservation explanations. Stanford-Binet MA had a more fundamental relation than CA to both nonverbal and verbal performance. No evidence for a horizontal *decalage* was found. (25 refs.) *Journal abstract.*

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1863 McMANIS, DONALD L. Comparisons of gross, intensive, and extensive quantities by normals and retardates. *Child Development,* 40(1):237-244, 1969.

Ninety normal and 90 retarded Ss, matched by groups at MA levels 5-10, were tested for ability to compare quantities of 3 types (gross, intensive, and extensive). The results showed gross quantities to be easiest, and extensive most difficult, to compare. Performance was strongly MA related, with advances occurring at different levels for the 3 quantity types. MA placements for success with intensive quantities were one year later for normals and 3 years later for retardates than Piaget found. For extensive quantities, MA placements were one year later for both normals and retardates. Present results indicated retardate deficits in seriation. (3 refs.) - *Journal abstract.*

University of Kansas
Lawrence, Kansas 66044

1864 PENN, NOLAN E., SINDBERG, RONALD M., & WOHLHUETER, M. JUDITH. The oddity concept in severely retarded children. *Child Development,* 40(1):153-161, 1969.

Forty residents of an institution for the SMR were given an oddity concept task similar to that used by Gollin and Shirk (1966) with young normal children. Ss in 3 MA groups were given a series of 54 trials on a 3-choice, 3-position color oddity task. No significant differences were found in the performances of the MA 3 and MA 4 groups; differences between the 4s and the MA 5-and-above group were significant. Performance differences between Ss whose clinical histories implied brain damage and those with no clinical evidence of same were nonsignificant. CA was inversely related to performance; higher CA was also related to response perseveration. (13 refs.) *Journal abstract.*

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1865 MILGRAM, NORMAN A., & RIEDEL, WOLFGANG. Verbal context and visual compound in paired-associate learning of mental retardates. *American Journal of Mental Deficiency,* 73(5): 755-761, 1969.

Trainable retardates (MA 5) and educable retardates (MA 7 and MA 9) learned one pictured paired-associate list more rapidly with verbal context than with visual compound but learned a second equally well with either condition. The list differences suggested that the encoding process was verbal-transformational rather than photographical in character. A second study related list and IQ differences to efficacy of formulating sentences describing the visual compound stimuli. As predicted, normals were superior to retardates in all sentence indices associated with effective encoding, but the expected list differences on these verbal indices were not obtained. (4 refs.) - *Journal abstract.*

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1866 GALLAGHER, JOSEPH W. The effect of association value and stimulus-response relationship on paired-associate learning. *American Journal of Mental Deficiency*, 73(5): 768-773, 1969.

The present study examined the influence of free association strength (FAS) and stimulus-response relationship on paired-associate (PA) learning at different ability levels. Each S received a syntagmatic or paradigmatic list which consisted of 3 high FAS pairs, 3 low FAS pairs, and 3 nonassociated pairs. Normal Ss learned the low and high FAS pairs faster than the nonassociated pairs. For the retardate group, no differences were found between the low FAS and the nonassociated pairs. Both the young normal (MA match) and older normal (approximate CA match) learned faster than the retardate group. Both associated and nonassociated syntagmatic pairs were learned faster than paradigmatic pairs. (12 refs.) - *Journal abstract.*

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University, Alabama 35486

1867 MARTIN, CLESSEN J., BOERSMA, FREDERICK J., & BULGARELLA, ROSARIA. Verbalization of associative strategies by normal and retarded children. *Journal of General Psychology*, 78(Part 2):209-218, 1968.

An MR group (13 males, 13 females; CA 13-15; IQ 72) and a normal group (14 males, 15 females; CA 13-16; IQ 112) were administered a practice paired-associate learning task, a 6-item paired-associate criterion task which contained low meaningfulness (*m*) stimuli and high *m* response, and an associative strategy task. Normal Ss evidenced superior performance, used more of the high level strategies, and took less time to verbalize their strategies. The groups were similar in their use of intermediate strategy levels and in latency to strategy emission. The mean practice tasks scores of normal and MR Ss were 16.66 and 12.04, respectively. Normal Ss learned significantly ($p<.001$) more pairs; however, the performance of both groups increased at approximately the same rate. Correlations for judge's ratings of associative strategy reports of each of the criterion-list pairs ranged from .82 to .96 for normals and from .79 to .99 for MRs. Normals had significantly higher total strategy scores ($p<.001$) and reported significantly ($p<.001$) higher strategy levels. There were significant negative relationships between strategy score and latency ($p<.05$) and between strategy score and verbalization time ($p<.01$) for normal Ss. MR Ss evidenced a significant ($p<.01$) negative relationship between strategy and latency and a significant ($p<.01$) positive relationship between strategy and verbalization time. (7 refs.) - *V. G. Votano.*

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1868 GATES, JOHN J., & FIXSEN, DEAN L. Response variability in retarded children. *Journal of Experimental Child Psychology*, 6 (2):306-320, 1968.

Ss in a study of the effects of schedule of reinforcement on response variability were 8 institutionalized SMR girls (CA 12-15 yrs; IQ 18-80) who resided in a "token-economy" cottage. The series of reinforcement schedules used with responses on an 8-key manipulanda were continuous reinforcement (CRF 1), variable interval reinforcement (VI), extinction (EXT), noncontingent reinforcement (NC), and a second presentation of continuous reinforcement (CRF 2). Preferences of 6 Ss were increased by VI, EXT, and NC schedules and increased preferences were generally for previously preferred keys. Four Ss returned to their CRF 1 pattern during CRF 2, while 2 Ss maintained their heightened preferences. Two Ss did not show preference changes under any reinforcement schedule. (14 refs.) - *V. G. Votano.*

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1869 KAUFMAN, MELVIN E., & GARDNER, WILLIAM I. Learning set efficiency in mentally retarded children. *American Journal of Mental Deficiency*, 73(5):798-800, 1969.

The study investigated 2 different initial learning set (LS) training schedules: presentation of relatively few discrimination problems for a relatively large number of trials (criterion group), and presentation of a relatively large number of discrimination problems, each of which was presented for a small fixed number of trials (fixed trials group). After receiving the same total number of training trials, both groups were presented with 50 additional 3-trial problems. Seventeen EMR Ss were placed in the criterion group and 14 in the fixed trials group. The results indicate significant differences on trial-2 performance between groups, with the criterion group exhibiting superior LS ability

The results are consistent with Harlow's hypothesis of the superiority of using larger numbers of trials/problem early in LS formation. (4 refs.) - *Journal abstract.*

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1870 BROWN, DAVID R., & SCHRIER, ALLAN M. Double-alternation learning by retardates. *Perceptual and Motor Skills*, 28 (2):451-457, 1969.

Double-alternation learning was studied in 12 MR Ss for comparison with data from animal studies and to analyze their ability to transfer learning to longer problems. Ss included 5 females and 7 males (institutionalized; CA range 14-32 yrs; MA range 4-10 yrs; IQ range 35-63). The apparatus was a modified Wisconsin General Test Apparatus. When Ss reached a criteria of 80% correct for 200 consecutive trials, they were administered problems of increasing length. Results showed that 7 of 12 Ss met this criteria, and none of these Ss had trouble responding to longer problems. There was almost no relationship between IQ, MA, and CA and success on the double-alternation problem. At the end of the experiment, only 3 Ss could verbalize the double-alternation principle, and these Ss were not the best performers. Comparison of these data with those from animal studies indicated that humans differed from non-humans in their performance on the double-alternation problem. (17 refs.) - *B. Bradley.*

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1871 GERJUOY, IRMA R., *WINTERS, JOHN J., JR., PULLEN, MARTHA M., & SPITZ, HERMAN H. Subjective organization by retardates and normals during free recall of visual stimuli. *American Journal of Mental Deficiency*, 73(5): 791-797, 1969.

Retardates and normals of equal MA were given 5 trials of a visually-presented free recall task to determine whether these populations cluster homogeneous materials when the items include letters, numbers, colors, and geometric forms. Stimuli were presented in one of 4 ways: single random; single clustered; paired random; or paired clustered. No differences were found in the 20-stimulus, single condition. For the 40 paired stimuli normals clustered and recalled significantly more than did retardates, and clustered presentation facilitated recall for both groups. Items grouped consecutively in categorical pairs doubled the retardates' output when the input was doubled. (9 refs.) - *Journal abstract.*

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1872 GERJUOY, IRMA R., & ALVAREZ, JOSE M. Transfer of learning in associative clustering of retardates and normals. *American Journal of Mental Deficiency*, 73(5):733-738, 1969.

Adolescent EMRs and equal MA normals were presented with 2 lists of 20 familiar words consisting of 5 words from each of 4 categories. Each list was presented at a separate session, and at each session Ss were given 5 trials of free recall. Half the Ss in each population were given the words in a randomized order at both sessions. The remaining Ss were presented the words in a clustered order at the first session and in a randomized order at the second. Both populations exhibited increased clustering and recall when the list words were presented in a clustered, rather than a randomized, order. Neither practice and familiarity with the task nor experience with a clustered list aided performance at the second session. (5 refs.) - *Journal abstract.*

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1873 HEAL, LAIRD W., BRANSKY, MALCOLM L., & MANKINEN, RICHARD L. *The Role of Dimension Preference in Reversal and Nonreversal Shifts in Retardates.* IMRID (Institute on Mental Retardation and Intellectual Development) Papers and Reports, 5(8):1-11, 1968.

Effects of dimension preference on reversal learning were examined with 32 institutionalized MR Ss (CA 12 to 40; IQ 35 to 67). Sixteen number-preferring and 16 brightness-preferring Ss were randomly assigned to either their preferred or non-preferred dimension for training. Dimension preference was significantly ($p<.001$) related to speed of learning on the initial problem and on the shift problem. Thus, if an S preferred number over brightness and was assigned to the number-reinforced problem, his performance was better. He was then likely to be significantly faster on the reversal problem (which involved the preferred dimension) or to exhibit significantly poorer performance on the non-reversal problem (which involved the non-preferred dimension). Fast initial learners

were either fast reversers or slow non-reversers. Research on reversal learning should consider dimension preference. (11 refs.) - *J. M. Gardner.*

1874 MOFFITT, ALAN R., & COATES, BRIAN. Problem-solving strategies and performance of severely retarded children. *American Journal of Mental Deficiency,* 73(5):774-784, 1969.

Problem-solving performance of low and high IQ (30.9; 40.6) and low and high MA (5.7; 8.1 yrs) groups of retarded children was investigated using a stimulus discrimination task under 3 percentages of reinforcement conditions (100%, 66%, 33%). Performance was better for the higher than for the lower IQ group, but was unrelated to MA. In addition, individual differences in response strategies used by the low and high IQ groups were found and were useful in interpreting differences in performances. (25 refs.) - *Journal abstract.*

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1875 GOZALI, JOAV. Impulsivity-reflectivity as problem solving styles among educable mentally retarded children. *American Journal of Mental Deficiency,* 73(6):864-867, 1969.

Eighty EMR primary pupils were tested individually on a circular version of Kagan's Matching Familiar Figures which identifies cognitive styles along the reflection-impulsivity dimension. Ss with long time response latencies and few errors (reflective children) made consistent efforts to solve the test items. Ss with short time response latencies and high error scores (impulsive children) tended to employ a position response set and to make more errors than did reflective Ss. (10 refs.) - *Journal abstract.*

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1876 DAVENPORT, R. K., ROGERS, C. M., & MENZEL, E. W. Intellectual performance of differentially reared chimpanzees: II. Discrimination-learning set. *American Journal of Mental Deficiency,* 73(6):963-969, 1969.

Eight near-adult chimpanzees that had been reared for the first 2 years of life in restricted laboratory environments were inferior to 8 wildborn controls both in pretraining and in discrimination learning set formation. Since both groups had shared the same cages and test experiences after the age of 2-3 years, the role of early experience is emphasized. The deficit of restricted Ss seemed to entail an inability to inhibit old responses (they made significantly more "stimulus perseveration errors " than controls) and a tendency to be easily distracted into "irrelevant" behaviors by "irrelevant" stimuli. (17 refs.) - *Journal abstract.*

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1877 O'DONNEL, JAMES P. Observing-response training and subsequent discrimination performance. *Child Development,* 40(1):191-199, 1969.

Observing-response (R_O) performance was investigated as a function of reinforcement (differential-nondifferential), instructions (specific-nonspecific), and IQ level (normal-retarded). Differentially Reinforced (DR) groups were superior to nondifferentially reinforced (NDR) groups. Within the DR groups, normals, having benefited relatively more from instructions, were superior to retardates. On a subsequent discrimination problem, DR groups were superior to NDR groups combined with control groups given no prior training. Separation of the DR groups on the basis of criterion or noncriterion performance in R_O training revealed that these groups were not different from each other but were superior to combined NDR-control groups. (10 refs.) *Journal abstract.*

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1878 HEAL, LAIRD W., & JOHNSON, JOHN T. *The Role of Cue Familiarization in the Discrimination Performance of Retardates, Primary Students, and College Students.* IMRID (Institute of Mental Retardation and Intellectual Development) Papers and Reports, 5(16): 1-18, 1968.

An examination of the role of cue familiarization in discrimination transfer performance revealed that an intradimensional shift was more difficult than a reversal shift for MR and primary student Ss, and that, under a pre-shift criterion of 5 correct, the reversal shift was more difficult for college student Ss. Ss were 40 institutionalized MRs (mean CA 30 yrs 9 mos; mean IQ 48.5), 56 primary students (mean CA 8 yrs 1 mo; mean IQ

103.4), and 40 college students. Planometric color and form cues were projected from the rear of an automated 2-choice apparatus onto panels that the S was instructed to press. Pre-transfer and shift problems required the S to select 2 difficult-to-discriminate forms and to ignore 2 easy-to-discriminate colors. A criterion of either 5 or 20 correct was used on the pre-transfer problem. These data indicate that, once a discrimination has been made, it is relatively complete and does not benefit greatly from additional training and the data also imply that the most efficient learning may occur when maximal time is devoted to the learning of cue classes and minimal time to the learning of discriminations. (12 refs.) - *J. K. Wyatt.*

1879 HOLDEN, EDWARD A., JR. Stimulus intensity and mental subnormality in perception of rectilinear dot progressions. *American Journal of Mental Deficiency*, 73(5): 749-752, 1969.

An illusory displacement task was employed to test selected hypotheses from Ellis' stimulus trace theory. Equal CA normals, equal MA normals, and educable retardates made "straight" or "crooked" judgments of rectilinear dot progressions generated by lights illuminated sequentially for 4 different intensities. There were no significant differences among subject groups, and increasing stimulus intensity had no significant effect on the number of "straight" judgments. Results indicated that, contrary to the theory, retardates and young children are not characterized by a stimulus trace deficit, and trace parameters are not dependent upon stimulus intensity within the range employed in this study. (8 refs.) - *Journal abstract.*

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1880 WILLIAMS, CHALOTTE L., & BLAKE, KATHRYN A. Stimulus meaningfulness and retarded, normal and superior subjects' classification of verbal materials. *Journal of Special Education*, 3(1):95-99, 1969.

Two sets of retarded, normal, and superior groups of children with one group equated for MA and the other group equated for CA were given tasks in which levels of meaningfulness had 2 variants (object level words and CVS trigrams). Each task consisted of 4 categories, and a 2-digit numeral was used to label each category. Tasks were presented orally and administered in small groups. Each task had a training and testing phase. All Ss were directed in the use of the deductive method and were told to reason from the general to the particular. The relationships observed for concrete and nonconcrete classification tasks in other studies persisted for tasks with verbal materials. Groups equated for MA did not differ on classification tasks which involved grouping items by initial letters, while in groups equated for CA, superior Ss responded more adequately than normal or MR Ss. Level of stimulus meaningfulness did not affect learning, and there was no interaction between IQ and meaningfulness. MRs and normals were equally successful in the use of organizational techniques. (20 refs.) - *V. G. Votano.*

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1881 RYNDERS, JOHN E. An investigation of visual stimulus feedback preferences in mentally retarded children. *Dissertation Abstracts*, 28A(8):3039, 1968.

SMR and PMR children exhibited a significant preference for a color motion picture film loop of caretaking interaction over black and white caretaking slides or a black and white out-of-focus slide. Ss were 25 PMR and SMR institutionalized children (CA range 2-10 yrs; MA range 3-63 mos; IQ range 9-70) who had adequate vision, attempted to feed themselves, and enjoyed caretaking interaction. Ss could view a visual stimuli by gently pressing a translucent panel. The measure of preference was the response duration of panel pressing for each stimulus. The reinforcement value of the color motion picture film decreased slightly from trial 1 to trial 4. Preference for the color film was reliable on both an intra-individual and inter-individual basis. Older children tended to evidence a greater response to the color film than younger children. (No refs.) - *J. King.*

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1882 McMANIS, DONALD L. Intralist differentiation and the isolation effect in serial learning by normals and retardates. *American Journal of Mental Deficiency*, 73(5): 819-825, 1969.

Sixty-eight normals and 68 retardates learned an isolated and a control list of 7 letter-sharing or nonsharing trigrams, by anticipation at a 4-second rate, to a criterion of 2 successive errorless or 15 total trials. Significantly more relative correct responses and significantly fewer relative intrusions

occurred on both the isolated items and on their responses in letter-sharing lists for the normals but not for the retardates. The results supported a stimulus and response generalization explanation of the isolation effect for the normals but not for the retardates. (8 refs.) - *Journal abstract.*

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1883 GREENE, ROBERT J., & HOATS, DAVID L. Reinforcing capabilities of television distortion. *Journal of Applied Behavior Analysis,* 2(2):139-141, 1969.

The effectiveness of television distortion as a negative reinforcer was analyzed. Contingency arrangements involving television distortion were found to be capable of accelerating the work rate of a naive, mildly retarded S on a simulated production-line task involving card-sorting; and reducing gross hyperactivity of a mildly retarded S. An escape-avoidance contingency was arranged for the production-line behavior of the first S and a punishment contingency for the hyperactive behavior of the second S. Television distortion appears to be an effective and practical negative reinforcer for use in behavior modification. (2 refs.) - *Journal abstract.*

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1884 BAILEY, JON, & MEYERSON, LEE. Vibration as a reinforcer with a profoundly retarded child. *Journal of Applied Behavior Analysis,* 2(2):135-137, 1969.

Data are presented which indicate that lever-pressing behavior of a PMR child could be reinforced by the contingent application of vibratory stimulation for each response. With vibration available 24 hours/day, no decrement in daily rate of responding for vibration was seen over a 3-week period. Suggestions are made for further use of this finding in working with the PMR. (3 refs.) *Journal abstract.*

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1885 WRIGHT, LOGAN, & WILLIS, CAROL. Reminiscence in normals and defectives. *American Journal of Mental Deficiency,* 73(5):700-702, 1969.

Twenty high level defective Ss with IQs between 60 and 78, and 20 normal Ss with IQs between 90 and 110 were trained to a common level of pursuit rotor performance (63% time on target). After reaching this level of performance, each S was allowed a 3-minute rest period, followed by 10 postrest trials. In spite of the fact that normal Ss required significantly fewer trials to reach the common level of prerest performance, they exhibited greater reminiscence following the rest period, suggesting a greater buildup of reactive inhibition. Unlike previous investigations the prerest study was successful in demonstrating this effect independently of Ss' level of prerest performance. (7 refs.) *Journal abstract.*

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1886 JOHNSON, RUSSELL M., & MILLNER, JOAN O. A creative-adaptive model of the intellect. *Journal of Learning Disabilities,* 2(6):308-315, 1969.

A creative-adaptive model of the intellect is based on Guilford's dimensions of products, operations, and contents and a sphere-shaped schema. The model emphasizes interindividual and intraindividual differences, the interaction of heredity and environment and the importance of environmental action. The sphere is divided into 120, 3-sided tubes, each of which represents a specific combination of a product, operation, and content. The 5 levels of intellect in the sphere are: a generator--hereditary potential; an inner resinous layer--self will; a layer of light--knowledge; a prismatic layer--knowledge reflection; and an outer resinous layer--deterrents to actualization. A sixth level, the atmosphere--infinite environment, is placed outside the sphere of intellect. Educational procedures can modify the inner and outer resinous layers and break down the outer resinous layer from within by reducing deterrents to actualization and motivating individual efforts to learn. This model can be applied to educational theory for children of limited, normal, and superior ability. Since the MR child had less than normal generative capacity, because of inheritance or damage, as well as defective functioning of the prismatic layer, his education should optimize residual generative power. The environment is a critical factor in the development of an MR child. In an average or above average

environment, the self-will layer of a limited child may function normally; however, in a sub-average or unfavorable environment, the limited child may lack the motivation to reach out to the environment, function at a below-capacity mastery level, and develop a thick deterrent layer. If the deterrent layer solidifies, the possibility of well-rounded development and optimal actualization is severely impeded. (5 refs.) - *J. K. Wyatt.*

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1887 GIRARDEAU, FREDERIC L. What is intelligence? *Mental Retardation/MR*, 7(1): 56-57, 1969.

An intelligence quotient is derived from responses to a series of stimuli, and in all cases, it is a score which represents a quantitative description of a sample of behavior. Confusing assumptions about intelligence include: intelligence tests provide a measure of an unobservable, undefined construct which is responsible for behavior; the distribution of intelligence among the population follows a Gaussian or bell-shaped curve; and intelligence is solely determined by the parents through the genes. These assumptions result in wasted professional time, and cause millions of children to be ignored, abandoned educationally, or sold short by professionals. Increased interest in behavior and its observable controlling variables should result in the development of methods which will permit the prediction and control of retarded behavior. (No refs.) - *V. G. Votano.*

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1888 HUNT, J. McVICKER. *How Children Develop Intellectually*. New York, New York, National Association for Retarded Children, 1969, 16 p. (Price unknown)

Modern theories on intellectual development suggest that a program of preschool enrichment could be designed which would raise the intelligence level of culturally deprived children. Although Darwin and Hall believed that intelligence was permanently fixed by heredity, later studies have shown that IQs of the same children were different at ages 4 and 18. The brain is now compared to a computer in that it has memory, logical operations, and hierarchically arranged programs. Motivation was solely attributed to need, pain, or sex until reflex arc and incongruity concepts were investigated. Conflicting theories on the importance of early preverbal experiences have held that early emotional experiences are significant but early cognitive experiences are not (Freud) and that early perceptual and cognitive experiences are extremely important in that they determine later responses to the environment (Hebb). Changes in intrinsic motivation during the preschool years move from responses to stimuli, to interest in the familiar, to interest in the novel and prepare the child for later development. Children from families with low educational and socioeconomic status are apt to have limited vocabularies, perceptual deficits, and fewer interests. Lower class environments appear to hamper the development of the last 2 stages in the development of intrinsic motivation in that crowded living conditions appear to make parents intolerant of children's questions, and learning is not encouraged. Nursery school experiences which provide varied stimuli and motivation for learning based on Montessori methods could be used to counteract the effect of cultural deprivation. (29 refs.) *M. Plessinger.*

1889 McBROOM, PATRICIA. Nurture key to IQ. *Science News*, 95(10):243-245, 1969.

Preschool education and continued exposure to environmental stimuli have been used to enhance the development of intellectual ability and increase IQ scores. Cultural changes over the years and socioeconomic class have distinguishing effects on IQ scores: the IQ difference between lower- and middle-class individuals is about 20 points; the Tennessee Valley Authority program resulted in IQ increases in affected rural children of roughly 10 points; the Head Start program has been shown to increase IQs up to 17 points; and a 2-year program in which tutors introduced puzzles, toys, and books to 30 children in Washington, D. C. ghettos one hour daily succeeded in increasing IQs by a mean of 17 points, but upon termination of the program, the IQs of the children began to drop. A longitudinal study begun in 1930 in Iowa illustrates the importance of continued education. All of 13 retarded orphans who received early individualized attention resulting in raised IQs of about 28 points are self-sufficient adults; a control group's IQs decreased 26 points, and some remain institutionalized. Because IQ scores revert when training is stopped, the need exists for early and continued education and proper environmental exposure. (No refs.) - *J. P. West.*

No address

1890 JENSEN, ARTHUR R. Patterns of mental ability and socioeconomic status. *Proceedings of the National Academy of Sciences of the United States of America*, 60(4):1330-1337, 1968.

A study of children from high and low socioeconomic status (SES) and high (100-120) and low (60-80) IQ indicated that capable performance on tests which ranged from simple associative learning to conceptual problem solving required 2 discrete, but functionally interdependent levels, of mental processes. The 2 levels emerged when the Ss were tested on rote learning, Raven's Progressive Matrices, and digit span where it appeared that these tests were measuring different mental processes in the different IQ and SES groups. The associative learning abilities, Level I, measured by these tests appeared to be necessary but not sufficient for the development of the conceptual abilities, Level II, which were measured by standard intelligence tests. Furthermore, Level I performance did not appear to be affected by cultural deprivation, and performance on Level II appears to depend on the status of Level I abilities. While Level I ability was distributed equally in both high and low SES groups, Level II was distributed around a higher mean in the high SES groups. Children who are above average on Level I abilities and below average on Level II appear to function more adequately in later life than those children whose performance on both levels is below average. Tests which reliably evaluate associative and conceptual learning and instructional methods which enhance Level I development are needed. (24 refs.) - *E. Gaer.*

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1891 HORWITZ, WILLIAM A., *DEMING, W. EDWARDS, & WINTER, ROBERT F. A further account of the idiots savants, experts with the calendar. *American Journal of Psychiatry*, 126(3):412-415, 1969.

A follow-up investigation of the remarkable ability of idiot-savant identical twins to accurately name the day of the week for a specific date in any year was initiated to develop a theory concerning their method. The twins are MR, and their level of concentration for questions other than those concerning calendar dates was exceedingly low. Interviews with the twins individually and together indicated that one twin appeared to have an unlimited range of years for correct responses (292 correct out of a total of 302 questions), while the other excelled only in dates within the twentieth century (97 correct out of a total of 291 questions). The superior twin apparently uses a method of substracting multiples of 400 (based on the 400-year cycle which is constant), but the less superior twin does not. The rote ability of both twins seems to have been encouraged by the their parents and reinforced by an early and continued preoccupation with the calendar. (1 ref.) - *V. R. Shaffer.*

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1892 NEEDHAM, WALTER E., *BRAY, PATRICK F., WISER, WILMER C., & BECK, EDWARD C. Intelligence and EEG studies in families with idiopathic epilepsy. *Journal of the American Medical Association*, 207(8):1497-1501, 1969.

Standard intelligence tests were administered to 73 patients with idiopathic epilepsy of a familial variety (petit mal or focal spike) and to their parents and siblings with (38 Ss) and without (186 Ss) epileptoid EEG patterns. All patients with epilepsy scored within the average range of intelligence, although approximately 1/3 fell within the "borderline" range. Within families, patients with epilepsy had significantly lower scores than their non-epileptic relatives, and the scores of relatives with epileptoid EEGs did not differ from the scores of those with normal EEGs. Approximately 70% of the epileptic patients scored below the median IQ of their relatives. Although clinical epilepsy of the familial variety does not appear to be associated with an intellectual deficit, it is impossible to make predictions about a specific epileptic child as approximately 1/3 scored above the median family IQ and 1/3 scored within the range requiring special education or supplementary tutoring. (18 refs.) *E. L. Rowan.*

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1893 BARNES, RICHARD H., MOORE, A., ULRIC, REID, IAN M., & POND, WILSON G. Effect of food deprivation on behavioral patterns. In: Scrimshaw, Nevin S., & Gordon, John E., eds. *Malnutrition, Learning, and Behavior.* Cambridge, Massachusetts, Massachusetts Institute of Technology Press, 1968, p. 203-217.

Differences in behavioral patterns resulting from simple food restriction or from protein-calorie malnutrition were observed in pigs

and rats. The results of conditioning, avoidance, and discrimination tests indicated that restriction of normal food, especially in the nursing period, produced a heightened attention toward food and lessened exploratory activity, which may influence behavior. These behavioral changes could be easily modified or abolished through adaptation or satiation in drive-relevant situations. Early food restriction had little effect on learning behavior that involved complex problem solving or in test situations that were not relevant to the drive characteristics that had been influenced by the food deprivation. Severe malnutrition in the form of protein deficiency produced similar behavioral patterns and retarded learning behavior in complex problem solving situations and in test situations that were not relevant to drive characteristics related to early deprivation. Drastic food restriction would probably simulate a condition of protein-calorie malnutrition. (14 refs.) - *M. G. Conant.*

1894 COWLEY, JOHN J. Time, place, and nutrition: Some observations from animal studies. In: Scrimshaw, Nevin S., & Gordon, John E., eds. *Malnutrition, Learning, and Behavior.* Cambridge, Massachusetts, Massachusetts Institute of Technology Press, 1968, p. 218-227.

The introduction of a low-protein diet to rats at weaning produced no significant change in their problem-solving behavior. However, when rats and their offspring were maintained on this diet, the problem-solving ability of the first, second, and third generations was affected, with mean error scores increasing progressively from control animals to the third undernourished generation. These results indicate that when the mother is undernourished, the development and maturation of her young are likely to be retarded, with later impaired problem-solving ability. In an exploratory study, the normal diet of female rats was supplemented with methandrostenolone, an anabolic steroid, from the age of 35 days. After 68 days on this diet, both experimental and control animals had the same growth curve, and experimental rats had fewer errors in problem solving. In any unfamiliar situation, laboratory animals voluntarily curtail their food intake. The relationship between malnutrition and behavior is primarily related to the mother-child interaction during gestation and the postnatal period, and in a stressful situation, the mother may voluntarily restrict her food intake. (10 refs.) - *M. G. Conant.*

1895 COLLIER, GEORGE H., & SQUIBB, ROBERT L. Malnutrition and the learning capacity of the chicken. In: Scrimshaw, Nevin S., & Gordon, John E. *Malnutrition, Learning, and Behavior.* Cambridge, Massachusetts, Massachusetts Institute of Technology Press, 1968, p. 236-240.

White Leghorn male chickens were fed a deficient diet from hatch to age 2 weeks and then a standard diet which was also fed to controls. Malnourished chickens failed to grow (death rate 25%), but growth resumed with institution of the standard diet. Starting at the age of 6 weeks, a one key problem was available to experimental and control animals and key-pecking was reinforced with food. In a second situation, a 3-key problem was available, and a fixed number of pecks on the center key presented a problem on the 2 side keys. The correct response to this problem was reinforced with food. There were no significant differences in learning between the 2 groups. Differences in level of motivation or in rate and degree of learning did not appear to be related to protein malnutrition in these animals. (8 refs.) - *M. G. Conant.*

1896 STOCH, MAVIS B., & SMYTHE, P. M. Undernutrition during infancy, and subsequent brain growth and intellectual development. In: Scrimshaw, Nevin S., & Gordon, John E., eds. *Malnutrition, Learning, and Behavior.* Cambridge, Massachusetts, Massachusetts Institute of Technology Press, 1968, p. 278-288.

Twenty severely undernourished Cape Coloured infants (South Africa) from unstable homes were matched with controls from the same class, but from stable homes, and the 2 groups were observed yearly for 10 years. At the end of this period, the undernourished group evidenced smaller head circumferences, more abnormal EEG patterns, and showed impaired visual perception. These factors support a theory of organic brain damage resulting from early undernutrition. Undernourished Ss also had a poor time concept and low performance on tests for Achievement-Related Behavior; conditions which may have been due to the influences of environmental factors. Verbal ability was low in both groups and was probably due to their impoverished situations. The mean IQ of the undernourished group was 15.5 points below that of the control group, and the scores of 60% of the undernourished children were below the lowest score in the control group. (13 refs.) - *M. G. Conant.*

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1897 RICHARDSON, STEPHEN A. The influence of social-environmental and nutritional factors on mental ability. In: Scrimshaw, Nevin S., & Gordon, John E., eds. *Malnutrition, Learning, and Behavior.* Cambridge, Massachusetts, Massachusetts Institute of Technology Press, 1968, p. 346-361.

The relationship between social class and mental ability was determined by an in-depth study of children in Aberdeen (Scotland). Intelligence test scores decreased, and the incidence of mild to moderate MR increased with decreasing social class, while the incidence of SMR was the same in every social class. Higher intelligence and reading performance test scores were obtained by children of upper social class women, and high achievement on these tests may have been influenced by the intelligence of the mothers. Social factors alone were not responsible for mental ability; however, social conditions least conducive to optimum mental development were generally characterized by the poorest levels of nutrition. Social factors play an important role in the prevention of malnutrition, as they influence the customs, values, and practices which determine community feeding patterns. (28 refs.) - *M. G. Conant.*

1898 CANOSA, CIPRIANO A. Ecological approach to the problems of malnutrition, learning, and behavior. In: Scrimshaw, Nevin S., & Gordon, John E., eds. *Malnutrition, Learning, and Behavior.* Cambridge, Massachusetts, Massachusetts Institute of Technology Press, 1968, p. 389-397.

In the approach described, nutritional state is the independent variable, mental development is the dependent variable, and social and cultural factors are also important variables. The development of an experimental plan for a 10-year longitudinal field study on the interaction of nutritional status and mental development is described. The organization of this plan includes sections responsible for the development of new tests, the prescription of food intake, the design of forms for data processing and analysis, and the definition of the physical characteristics of the population under study. Methods of measuring nutrition and learning-behavior must be suited to the particular population under investigation and the age of the child. Possible results include: no change in nutritional status or in mental development; changes in only one variable; or changes in both variables. (No refs.) - *M. G. Conant.*

1899 BANGS, TINA E. *Language and Learning Disorders of the Pre-Academic Child: With Curriculum Guide.* New York, New York, Meredith, 1968, 408 p., $6.95.

This text deals with the problems of language deficiency and learning disorders at the preschool level and presents a plan for early identification and assessment related to future academic achievement, a pre-academic curriculum guide designed to strengthen assets or compensate for deficits, and clinical and educational materials. The curriculum guide can be adapted for use with deaf, MR, aphasic, aphasoid, brain-injured, minimally brain-injured, emotionally disturbed, perceptually handicapped, language disordered, underprivileged, normal, and gifted children. *Language and Learning Assessment: For Training* is a battery of tests, as yet incomplete, which has been successfully used by teachers and diagnosticians to prepare children for an academic program. Since many children with the same medical and educational diagnoses have different assets and deficits, techniques for the assessment of their language and learning status provide important information around which the teacher may structure a systematic training program. Teachers do not necessarily require new methods to teach preacademic skills to all children; however, they should be able to apply some of the fundamental principles of learning. The preacademic curriculum guide includes data on child growth and development, language skills, avenues for learning, and pre-academic subjects as well as teaching units for age groups from under 3 years of age through a readiness level. This book should be of interest to nursery school, kindergarten, and special education teachers; educators; speech pathologists; audiologists; and personnel involved in language development programs. (123-item bibliog.) - *J. K. Wyatt.*

CONTENTS: Introduction; Communication; Intelligence; Assessment Tools; Techniques of Assessing and Reporting; Developing a Pre-Academic Program; Pre-Academic Curriculum Guide; Teaching Principles and Techniques; Adapting the Curriculum Guide: Children with Hearing Impairment; Adapting the Curriculum Guide: Children in a Pre-Academic Setting.

1900 MASSENGILL, RAYMOND JR., & SMITH, DONALD D. Histidinemia and language development: A case report. *Journal of Communication Disorders,* 1(1):51-52, 1967.

A young male with delayed speech was unable to produce consonant sounds but was normal in other respects. No hearing problems were

found, and the child showed good comprehension and normal growth and development. At the age of 2 years 5 months, a urine specimen was chromatographed for amino acids and yielded a large spot consistent with increased histidine. At the age of 3 years, histidine loading tests revealed elevated levels of serum histidine which were not normally excreted. He was placed on a low-protein diet, and after a month, no appreciable level of histidine was found in the blood. At this time, the patient developed more interest in speech and began to make consonant sounds. (2 refs.) *V. G. Votano.*

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DEVELOPMENTAL ASPECTS--SOCIAL

1901 SHELLHAAS, MAX D. Sociometric status of institutionalized retarded children and nonretarded community children. *American Journal of Mental Deficiency*, 73(5):804-808, 1969.

A sociometric analysis was made of the camping experiences of 67 institutionalized retarded children (mean CA 13 yrs; mean IQ 52) and 53 nonretarded community children (mean CA 10 yrs; mean IQ 98). Camp sessions lasted 5 days. Pre- and post-camping sociometric ratings were obtained by asking each S to indicate the person he liked best and the person he would like to engage in different activities with. It was predicted that at the pretest, institution (I) Ss would choose I Ss and community (C) Ss would choose C Ss, and that at the post-test more I Ss would choose C Ss than vice versa. This prediction was based on previous findings that intelligence and sociometric status are related. On pretests, 93% of first choices and 88% of second choices were for former acquaintances. At post-testing, there were significantly more cross-choices, and more I Ss chose C Ss than vice versa. Correlations between sociometric status and intelligence were .09 on the pretest and .27 on the post-test. (4 refs.) *J. M. Gardner.*

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1902 McINTOSH, ERANELL I., & WARREN, SUE ALLEN. Adaptive behavior in the retarded: A semi-longitudinal study. *Training School Bulletin*, 66(1):12-22, 1969.

Adaptive behavior measurements were made with Vineland Social Maturity Scale (VSMS) on 109 institutionalized retarded children by staff psychologists making direct observations on wards. Scores were highly consistent across 5 annual measurements. Of 22 children in individualized school or psychological programs designed to increase adaptive behaviors, 7 made more gains than predicted from the initial measures, but only during the first year of the special program. Of 7 children with marked decreases in VSMS scores, 3 were degenerative cases and 4 young mongoloids. Possibilities for use of VSMS in programing were discussed. (17 refs.) - *Journal abstract.*

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1903 NIHIRA, KAZUO. Factorial dimensions of adaptive behavior in adult retardates. *American Journal of Mental Deficiency*, 73(6): 868-878, 1969.

This study attempts to explore the basic parameters of adaptive behavior and the primary dimensions along which retardates differ from one another in coping with their environment. Objective descriptions of the coping behavior of 919 adult institutionalized retardates were obtained by means of newly developed behavior rating scales. A factor analysis of 22 variables representing 10 behavior domains in personal independence and 12 behavior domains in personal and social responsibility delineated 2 major dimensions, Personal Independence and Social Maladaptation. Implications of the results are discussed in relation to the unidimensional classification system of adaptive behavior currently accepted in the field of MR. (27 refs.) - *Journal abstract.*

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1904 NIHIRA, KAZUO. Three factors of adaptive behavior in mentally retarded children, adolescents, and adults. *Project News* of the Parsons State Hospital and Training Center, 4(10):1-5, 1969.

The Parsons Adaptive Behavior Checklist (ABCL) was administered to 1,232 ambulatory male and female retardates (CA 8 and 55) in 3 midwestern state institutions. While the entire range of retardation was measured, representation was greatest at the lower levels. The ABCL is a behavior rating scale which provides measures of self-care and social skills. It contains 272 self-care and 265 social skills items. Information is provided by persons familiar with the patient. The factor structure of the test was determined for 4 maturational levels: pre-adolescent (CA 8 to 11); early adolescent (CA 12 to 15); late adolescent (CA 16 to 19); and adults (CA 19 to 55). Three factors emerged repeatedly at the different age levels: personal independence (PI); social maladaptation (SM); and personal maladaptation (PM). PI refers to behavior competence and is similar to the Vineland notion of social competence. SM involves extrapunitive behaviors such as destructiveness, rebelliousness, and antisocial acts. PM generally concerns intropunitive behaviors such as stereotyping and self-abusive acts. The relative independence of PI from PM and SM suggests that the unidimensional classification system presented in the AAMD annual should be reevaluated since retardates with equal competences can vary considerably in 2 different forms of maladaptive behaviors. (10 refs.) - *J. M. Gardner.*

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1905 KREBS, HEINZ. Verhaltensbeobachtung bei geistig Behinderten (Observation of behavior patterns in the mentally retarded). *Heilpadagogische Forschung,* 1(3):325-352, 1968.

Two main sources of error in the diagnosis of behavior abnormalities in the MR are secondary manifestations due to brain damage in the patient and the subjective reactions of the person administering the test to the patient. The abnormal behavior of MRs which could be reduced or eliminated in persons of average intelligence, may not respond to therapy because of the effects of brain damage. The person working in diagnosis must constantly be aware of such errors and guard against tendencies toward leniency errors, logical errors, proximity errors, and the halo effect. New testing systems are now being devised which will eliminate some of these sources of error. (46 refs.) - *S. L. Hamersley.*

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1906 FRANKOVA, SLAVKA. Nutritional and psychological factors in the development of spontaneous behavior in the rat. In: Scrimshaw, Nevin S., & Gordon, John E., eds. *Malnutrition, Learning, and Behavior.* Cambridge, Massachusetts, Massachusetts Institute of Technology Press, 1968, p. 312-322.

Infant rats were divided into 4-, 9-, 13-, or 17-member litters immediately after birth, and 1/2 of the litters were stimulated daily, while the other 1/2 did not receive stimulation. Intensity of exploratory behavior in unstimulated litters was low, with the greatest activity in the 4-rat groups. Members of the 9- and 13-member stimulated litters showed the most exploratory activity. In one litter of 17 rats which received a high-fat diet and stimulation, the diet compensated for the large litter size in postnatal development and intensity of exploratory behavior increased. In a second study, intensity of spontaneous activity was compared in rats whose mothers fed *ad libitum,* in those whose mothers were given 1/2 the normal food intake and in those who were prematurely weaned, with 1/2 also receiving stimulation. Stimulated and unstimulated *ad libitum* fed controls showed significantly more spontaneous activity. Favorable results were obtained when a high-fat diet was fed to the offspring of calorie-restricted mothers. (12 refs.) *M. G. Conant.*

1907 FRANKOVA, SLAVKA, & BARNES, RICHARD H. Effect of malnutrition in early life on avoidance conditioning and behavior of adult rats. *Journal of Nutrition,* 96(4):485-493, 1968.

Adult rats fed a protein- and calorie-restricted diet for the first 7 weeks of life evidenced increased excitability and behavioral abnormalities during a 12-day avoidance conditioning experiment. The avoidance conditioning and behavior of a control group of rats fed a basal diet during the entire experimental period was compared with that of 3 groups of malnourished rats. Malnourished animals had suckled dams fed a low-protein diet during a 3-week preweaning period. They were then fed either a low-protein diet, a

basal calorie-restricted diet, or a basal diet for 4 weeks. Six avoidance conditioning tests and one extinction experiment were conducted. No significant between-group differences were found for learning rate. The behavioral abnormalities displayed by the protein- and calorie-restricted animals were in the form of inadequate stereotyped movements and inability to delay or extinguish fixed conditioned reactions. Behavioral disturbances were not observed in animals restricted only during the preweaning period. These findings support those of previous studies which have demonstrated that both pre- and postweaning nutritional deficiency have a greater effect on the behavior of rats than preweaning nutritional restriction alone. (25 refs.) - *J. K. Wyatt.*

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1908 KAPLAN, MARTIN F., & LOTSOF, ERWIN J. Are the principles of behavior of "exceptional children" exceptional? *Psychological Reports,* 23(2):1207-1213, 1968.

The thesis was presented that behavioral differences in groups of "exceptional" children do not imply different principles of behavior are applicable to each group, as is often suggested, but instead are consequents of differences in learning capacity and modified environmental conditions associated with the exceptionality. Methodological problems in the identification of unique characteristics of the exceptional child were discussed, and it was suggested that studies of deviant groups address the following problems: Is the behavior of the given group unique to that group? What are the learning antecedents of observed group differences? (27 refs.) *Journal summary.*

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1909 SCHALLER, ELISABETH. Minderbegabung und Jugendkriminalitat (Mental retardation and juvenile delinquency). *Heilpadagogische Werkblatter,* 37(2):71-80, 1968.

The files on 200 juvenile delinquents in the canton of Lucerne (Switzerland) showed that below-average intelligence and MR were contributing but not main factors in juvenile delinquency. Results showed that 28% of the juvenile offenders were of low IQ or definitely retarded, as compared to 7% of the total population between the ages of 14 and 18 years. Property crimes made up 64.9% of the offenses of MR Ss, and sexual offenses comprised 42.1%. The rate of sexual offenses was higher for MR Ss than for normal Ss. An intensive study of 20 MR Ss showed that only 5 did not evidence signs of somatic or psychopathological disturbances. The environmental conditions of the Ss were generally poor and included broken homes, alcoholism of one or both parents, and general neglect. The Ss' free time was spent away from the home environment, and they often came into contact with criminal elements. Since the MR often lack the ability to make judgments of right or wrong, they were easy targets for individuals seeking to exploit them. Other contributing factors were increased liability to psychic disturbance, which was especially prevalent in sexual offenses, and lack of proper discipline in the home. Correction of this problem requires the provision of better social services, and educational and recreational opportunities for endangered MR youth. (No refs.) - *S. L. Hamersley.*

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1910 BLACKHURST, A. EDWARD. Mental retardation and delinquency. *Journal of Special Education,* 2(6):379-391, 1968.

A review of the literature on the relationship between MR and delinquency revealed that MR is a complicating factor in, rather than a direct cause of, delinquency. Some findings were that there is a higher rate of MR among the socially, economically, and culturally deprived segments of the population which produce the largest percentage of prison inmates; that there are more commitments and fewer paroles for MRs involved in crime; that MRs are often used as pawns by the more intelligent; that MRs make more mistakes in committing a crime and are thus more easily apprehended; that female MRs who engage in illicit sex are more frequently apprehended than normal females engaged in the same activities; and that MRs often lack funds to pay for adequate defense counsel. MRs commited a greater number of crimes against the person and a larger number of sexual offenses, and their crimes were more impulsive and illogical than those of normals. Proposals aimed at solving problems involved in the education and treatment of MR delinquents included: the formation of an AAMD committee to explore rehabilitation problems with correctional authorities; the development of a model code by this committee which could be used to identify and describe MR delinquents; and the use of case studies to identify the needs of defective

delinquents so that appropriate facilities and training programs can be developed. (64 refs.) - *B. Parker.*

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1911 MOHAN, VIDHU, & SETHI, LOVELEEN. A study of personality of mentally deficient children. *Indian Journal of Mental Retardation,* 1(2):67-74, 1968.

Twenty-five male (modal CA 14.1) and 25 female (modal CA 14.3) EMRs (mean MA 7) were compared with 2 different groups of normal Indian children for scores on neuroticism and extroversion. It was predicted that retardates, being lower in intelligence, would be more extroverted and less neurotic. This hypothesis was based on Eysenck's findings that intelligence is positively related to introversion and has a curvilinear relationship to neuroticism. The Junior Personality Inventory was individually administered to each S. Reliability (using parallel forms) was high for both girls and boys on both measures. Retarded Ss were significantly more extroverted than either group of normals (ts 4.40 and 3.01; $p<.01$), and EMR boys did not appear to differ from EMR girls. This comparison could not be made for neuroticism because the data for the retardates were not normally distributed, but were positively skewed. On the whole, scores for retarded Ss did not appear to be significantly different from those of normals. Measures of central tendency revealed that retarded girls tended to be significantly higher on neuroticism than boys and that their scores were less stable. (18 refs.) - *J. M. Gardner.*

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Chandigarh-14, India

1912 LACY, SUZANNE. Serum uric acid level and personality correlates in mental retardates--A pilot study. *California Mental Health Research Digest,* 7(2):81-82, 1969.

Uric acid (UA) level in serum was slightly related to personality characteristics, such as drive, achievement, and leadership in MRs. The relationship between IQ and UA level was not significant. Sixty patients selected from a ward of highly capable institutionalized MRs were tested for UA level. From this group, 6 patients with high UA were selected and matched by sex and IQ level with 6 patients with low serum UA levels. Tests used included the Gordon Personal Profile, a Behavior Rating Scale (BRS), pedometer readings, and a Paper Clip Test. The Paper Clip Test measured drive, which was defined as persistence, speed at a given task, and efficiency. Only paper-clip-time data differentiated high from low blood UA groups. All other data discriminated at or near the chance level. When data were analyzed by sex, the leadership scale of the BRS discriminated between high and low UA. (No refs.) *F. J. McNulty.*

Porterville State Hospital
Porterville, California 93257

1913 MILGRAM, NORMAN A., & RIEDEL, WOLFGANG W. Developmental and experiential factors in making wishes. *Child Development,* 40(3):763-771, 1969.

Eighty normal children in grades 1, 4, 7, and 10 and 80 institutionalized and non-institutionalized retardates made up 3 wishes they hoped would come true. With increasing age, children wished for abstract or intangible human conditions rather than for concrete or tangible possessions; wished for things consistent with adult rather than child status; and made altruistic wishes, benefiting others rather than themselves. Age and IQ differences in frequency of the 3 types of wishes were discussed in terms of differential rates of conceptual, social and emotional development, generally, and the adverse experiences of retardates, in particular. (3 refs.) *Journal abstract.*

Catholic University of America
Washington, D. C. 20017

1914 CUNNINGHAM, MORRIS A. A comparison of the language of psychotic and non-psychotic children who are mentally retarded. *Journal of Child Psychology and Psychiatry and Allied Disciplines,* 9(3/4):229-244, 1968.

The speech of 13 institutionalized psychotic MR children (CA range 5-13, MA range 2 1/2-7) was compared with that of a matched sample of MR children. Speech observations were made during 4 play sessions which lasted until 50 remarks had been recorded. Remarks were classified according to comprehensibility, length, grammatical structure, and function. Egocentric speech was further classified into subgroups. Types of remarks which were classified included volunteering information, emotionally toned remarks, questions, answers, incomplete sentences, repetition, and

thinking aloud. Three psychotic children used short sentences and had poor pronunciation and peculiar intonations. Their language difficulty appeared to be similar to aphasia. Four psychotic children used longer sentences, pronounced well, and formed sentences. They did not appear to have a language handicap. These children asked an excessive number of questions, and the content of their speech was sometimes nonsensical. In general, the speech of psychotic children was characterized by non-communicative speech, repetition of self and adults, a lack of speech giving information, excessive demands and requests, and inappropriate or purposeless remarks. Psychotic children may not discriminate between the various social reinforcers such as a smile or a frown. (17 refs.) - *V. G. Votano.*

Department of Child Psychiatry
Crichton Royal
Dumfries, Scotland

1915 ASPERGER, HANS. Zur Differentialdiagnose des kindlichen Autismus (On the differential diagnosis of early infantile autism). *Acta Paedopsychiatrica,* 35(4-8): 136-145, 1968.

Infantile autism is defined as a total lack of affective contact with other persons from birth and should be differentiated from abnormalities such as schizophrenia, MR, and deafness which have similar behavior patterns. In contrast to the schizophrenic child who shows some signs of development before his withdrawal, the autistic child never begins affective development. In some cases, an autistic child may be MR; however, it is possible for him to be extremely intelligent. While the deaf child never reacts to sounds, the autistic child will respond selectively. (19 refs.) - *S. L. Hamersley.*

Universitatskinderklinik
Spitalgasse 23
Vienna IX/68, Austria A 1090

1916 FERSTER, C. B. The autistic child. *Psychology Today,* 2(6):34-37, 1968.

The incidence of autism is about 1/50,000 or 100,000 children. Autistic children exhibit massive failure of development which appears to occur because they have experienced more severely damaging situations than normal children. They frequently communicate by using primitive forms of behavior, called atavisms. Treatment is difficult because much of their normal behavioral repertoire is missing, and it requires the recreation of a long history of experiences. A promising program at the Linwood Children's Center (Washington, D.C.) is based on a model of cooperative work between clinical and experimental psychologists. This model has enlarged the number of ways in which the behavior of an autistic child can be developed and has helped to describe, refine, and modify clinical procedures. (6-item bibliog.) - *J. King.*

No address

DEVELOPMENTAL ASPECTS--PSYCHODIAGNOSTICS

1917 GANNON, D. R. Relationships between 8-mo. performance on the Bayley Scales of Infant Development and 48-mo. intelligence and concept formation scores. *Psychological Reports,* 23(2):1199-1205, 1968.

Six measures of performance of the Bayley Scales of Mental and Motor Development at 8 months were correlated with 48-month Stanford-Binet IQs and the Graham-Ernhart Block Sort Test (N=384). All but one correlated significantly ($p<.05$) with IQ (range .13 to .15) while 3 were predictive of the Block Sort scores (range .12 to .14). Scores derived from item analyses of the Bayley Scales and the 48-month tests also yielded significant correlations with later performances (range .17 to .28). Weighting items did not substantially increase relationships. These results are similar to previous data: there are statistically, but not practically, significant correlations between infant and preschool test performances. (10 refs.) - *Journal summary.*

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1918 PAUL, HOWARD A., & MILLER, JOEL R. Preliminary report: Vineland Ego Development Profile. *Training School Bulletin*, 66(1):4-11, 1969.

A test for longitudinal adjustment in retardates 16 and over was devised (Vineland Ego Development Profile). The test is a projective method using Human Figure Drawings. Two administrations of the test are given with some time elapsing between administrations. A score is derived by taking the weighted value of administration A minus administration B. Interrator reliability is .94, test retest reliability was found to be .99. Validity scores of .84 and .83 have been obtained. Larger validation studies are being undertaken. (7 refs.) - *Journal abstract.*

American Institute for Mental Studies
Vineland, New Jersey 08360

1919 ATTWELL, ARTHUR A., JAMISON, COLLEEN B., & FILS, DAVID H. Relationship between the WRAT, a behavior guide, and achievement with retarded adolescents. *American Journal of Mental Deficiency*, 73(6):879-882, 1969.

The 1946 edition of the Wide Range Achievement Test was administered to 51 TMR adolescents. One year later, both the 1946 and 1965 editions of the WRAT, along with the test Behavior Observation Guide, were administered to the same Ss. The 1946 and 1965 editions of the WRAT were so similar as to be considered interchangeable. Certain areas of the Test Behavior Observation Guide (Performance Rate, Attention, Effort, and Interest) were considered predictive of school achievement, validating previous studies of the retarded with the use of this instrument. The mean pupil gain in achievement during the year was positive, but not significant. (9 refs.) - *Journal abstract.*

California State College
Los Angeles, California 90032

1920 DIESING, U., & DITTMAN-MITZSCHERLICH, S. Psychologische Untersuchungen bie Kindern nach Masernenzephalitis (On psychological examinations of children following measles encephalitis). *Archiv fur Kinderheilkunde*, 177(1):9-17, 1968.

A battery of psychological tests given to 15 children who had measles encephalitis before age 10 showed no conclusive evidence that behavioral abnormalities were caused by the disease. In those cases where abnormalities occurred, there were other factors such as brain damage at birth or in infancy which could have influenced behavior patterns. (17 refs.) - *S. L. Hamerseley.*

Universitats-Kinderklinik
Homburg (Saar), West Germany D 6650

1921 SILVERSTEIN. A. B. The internal consistency of the Stanford-Binet. *American Journal of Mental Deficiency*, 73(5):753-754, 1969.

Analysis of the performance of 80 institutionalized MRs (mean CA 13.0 yrs; mean MA 5.8 yrs; mean IQ 49.2) on the Stanford-Binet, Form L-M revealed that the test's internal consistency is high (Cronbach's α = .931; Cronbach's α' = .953). The magnitude is comparable to findings in previous studies where alternate-form and test-retest reliability estimates were used. (7 refs.) - *A. Huffer.*

Pacific State Hospital
Box 100
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1922 MESSER, MICHAEL E., & ALLEN, ROBERT M. Verbal recognition and non-verbal reasoning of retardates. *Perceptual and Motor Skills*, 28(1):334, 1969.

The correlation between the Peabody Picture Vocabulary Test and the Figure Reasoning Test administered to 26 EMRs with emotional problems (mean CA 15 yrs 3 mos; mean MA 8 yrs 3 mos; mean PPVT IQ 66) was not significant (Pearsonian r = .30). This fact supports the contention that the 2 tests measure different aspects of intelligence and should not be substituted for each other. (2 refs.) - *A. Huffer.*

University of Miami
Coral Gables, Florida 33148

1923 STEPHENS, WILL BETH, & KOWATRAKUL, SURANG. Paper-and-pencil versus concrete performance of normals and retardates on the ETS written exercises. *Proceedings of the 77th Annual Convention of the American Psychological Association*, Volume 4, Part 2, 1969, p. 631-632.

The performance of normal and MR children on written and concrete exercises supports Piaget's theory that teaching methods should provide direct manipulation of objects before progressing to symbolic forms of instruction. There were 48 normal Ss (mean CA 6 yrs 2 mos;

MA range 5-7 yrs) and 48 MR Ss (mean CA 10 yrs 2 mos; MA range 5-7 yrs). Ss were randomly assigned to 2 groups. One group was administered written tests by the Educational Testing Service and the other group were administered concrete exercises derived from the written test. Subtests included: shapes and forms; spatial relationships; time concepts; understanding mathematics; communication skills; and logical reasoning. One exercise/day was administered for a 6-week period. Means and standard deviations for performance skills were computed on each subtest for both groups, and 2-way analysis of variance was performed on the 6 dependent variables. Results showed normal and MRs performed significantly better on the concrete form of every subtest. The test scores of MRs, were equal to or higher than those of normals in all areas, except the communication skills subtest. The low Communication Skills scores of MRs support previous findings that MRs have difficulty in the coordination of motor and verbal behavior. (7 refs.) - *S. Markworth.*

Temple University
Philadelphia, Pennsylvania 19140

1924 SMITH, DOLLIE, & MURPHY, WILLIAM K. A new world for Lori. *Mental Retardation in Illinois,* 3(1):3-5, 1969.

The "short-term habit training" program at the Andrew McFarland Zone Center (Illinois) trains 3- to 15-year-old SMRs and PMRs in self-help skills. Extensive social, medical, and developmental information is collected on each child before admission to the program. Each child undergoes a 2-week period of observation by the staff prior to acceptance in the program. Mothers are encouraged to participate in the training to reduce the separation problem for the child, facilitate adjustment, and permit staff observations of the mother-child relationship. The first student admitted to the program was a CP SMR girl (CA 6 yrs) who could not feed herself, walk, or talk, and was not toilet trained. Walking was selected as a major goal, and she was ignored while crawling and rewarded when she tried to walk. She participated in 15-minute sessions each hour in walking, bathing, dressing, and toilet training. During early feeding sessions, she was encouraged to play with food and spoon. Later she learned to use a special spoon and to accept help in guiding it to her mouth. When the child was discharged from the program after 5 months, the mother was taught to use behavior modification techniques and was given detailed written instructions so that the program could be continued at home. (No refs.) *M. Plessinger.*

No address

1925 BARTZ, WAYNE R., & LOY, DONALD L. The Shipley-Hartford as a brief I. Q. screening device. *California Mental Health Research Digest,* 7(3):141-142, 1969.

Studies have shown that the results obtained with the Shipley Institute of Living Scale (Shipley-Hartford)--a test of intellectual impairment, correspond closely enough with full-scale WAIS results (correlation range .73 to .90) to be adequate as a general time-saving device in IQ screening. A conversion table to WAIS scores is presented for the Shipley-Hartford test containing 40 vocabulary items and a 20-item abstraction section (each allowing 10 mins for completion), which may be adequately administered to one or more literate Ss (CA 15 yrs or older), without serious visual handicaps. Although the test may be administered by non-professionals, it should be supervised by psychologists, and caution should be taken in labeling individuals on the basis of such rough-estimate IQ scores. (No refs.) - *V. R. Shaffer.*

No address

1926 SONG, A. Y., & SONG, R. H. The Bender-Gestalt Test with the Background Interference Procedure on mental retardates. *Journal of Clinical Psychology,* 25(1):69-71, 1969.

Organic MRs had significantly higher D scores ($p<.05$) on the Bender-Gestalt with the Background Interference Procedure (BIP) than cultural-familial MRs and emotionally disturbed nonorganic MRs. The scores of emotionally disturbed Ss were not significantly different from those of cultural-familial MRs. There were 33 organic Ss (mean CA 19.25; mean IQ 56), 22 cultural-familial Ss (mean CA 18.60; mean IQ 63), and 15 emotionally disturbed Ss (mean CA 19; mean IQ 70). All Ss drew Bender-Gestalt designs under standard and BIP conditions. The revised Pascall-Suttell method was used to score all tests. These findings support the hypothesis that Bender-Gestalt performance under the BIP depends on organic disorder rather than emotional disturbance. (12 refs.) - *V. G. Votano.*

Cooperative Educational Service
Agency 18
Burlington, Wisconsin 53105

1927 WASSING, H. E., & VAN KREVELEN, D. ARN. Zur Frage der Intelligenz zeichenbegabter autistischer Kinder (The question of intelligence of autistic children who are talented in drawing). *Acta Paedopsychiatrica*, 35(4-8):215-227, 1968.

A series of intelligence tests administered to a 12-year-old autistic boy who was talented in drawing showed that his abilities in all areas besides perception were comparable to those of an EMR child, demonstrating that the drawing talent was not indicative of latent ability in other areas. This case can be compared to cases of SMR children who show a special talent in one area such as music or working with numbers. (28 refs.) - *S. L. Hamersley*.

Paedologische Kliniek "Curium"
Oegstgeest, Holland

1928 VULPE, SHIRLEY GERMAN. Home care and management of the mentally retarded child: Assessment battery. National Institute on Mental Retardation of the Canadian Association for the Mentally Retarded. (No date) 43 p. Mimeographed.

This basic skill battery provides assessment data on basic senses and functions, perceptual-motor skills, fine-motor skills, gross-motor skills, daily living skills, and behavior skills for children with functional levels between 3 months and 6 years of age. The battery can be adapted to meet the special needs of the child or examiner. The environment, the activities, and/or the approach of the examiner may be modified to obtain maximum performance from each child for each activity or skill. Scoring includes: a summary of the examiner's impressions; a summary of the child's total range of performance in each skill area; recommendations for further management, additional testing, or treatment; a skill profile; and a treatment profile. (No refs.) - *J. K. Wyatt*.

1929 MANEY, ANN C., PLUMMER, DANIEL A., & PACE, ROBERT. Toward a behaviorally-oriented inventory of program needs in institutional populations of "habilitable" retardates. *Training School Bulletin*, 66(1): 40-56, 1969.

The development of a checklist for describing high trainable and educable retardates is detailed. The study is based on 141 institutionalized, Southern, Negro children (IQ range 30-69; CA range 6-26). A principle components factor analysis identified 5 types of problems underlying requests for admission to a state institution; community conspicuousness, psychic versus social alienation, parental conflict versus inadequacy, interpersonal versus property delinquency, and traditional versus modern family organization. There were significant relationships between these quantitative categories and qualitative judgments made by social workers. Six distinct profile types emerged, and a checklist based on these profiles was constructed. Profile types included the emotionally disturbed, delinquents, pre-delinquents, the conduct disordered, the deprived, and the handicapped. The checklist reliably reproduced the component scores derived from the factor analysis and the profile classifications. This procedure is important in that it can be used to identify the program needs of each individual. (32 refs.) - *J. M. Gardner*.

Personal and Social Organization Section
Department of Health, Education, and Welfare
Adelphi, Maryland

1930 COBB, HENRY V. The Predictive Assessment of the Adult Retarded for Social and Vocational Adjustment--Part II: Analysis of the Literature. (Final Report, Research Project RD-1624-P, Social and Rehabilitation Service, U. S. Health, Education, and Welfare Department). Vermillion, South Dakota, University of South Dakota, 1969, 167 p.

In reviewing the 19 studies on the predictive assessment of social and vocational competence in adult retardates, it is apparent that the problems of prediction are complicated by the heterogeneity of criterion variables, the multiplicity of possible predictor variables, and the time period between prediction and evaluation of success. The latter problem is further complicated by the stability of the predictor measures over time and the effects of intervening experiences. While no certain formulas for predicting adult success are apparent, clear findings which emerge include: a high proportion of mildly retarded adults make satisfactory adjustments in terms of employment, marriage, and law-abiding behavior; the problem of adult adjustment is a multidimensional one; and the most stable predictors have been measures of manual dexterity, while measures of personality, social maturity, and intelligence have achieved little success. Further systematic research is clearly indicated. (191 refs.) - *J. M. Gardner*.

CONTENTS: The Problem of Prediction; A History of Follow-up Studies; Kennedy's Follow-up of Mentally Deficient Adults in Connecticut; Studies by Baller, Charles and Miller of

Nebraska Children in Adult Life; A School-Rehabilitation Follow-up (Deno); A Follow-up Study of the Mentally Retarded (Saenger); The Prognosis of Mental Subnormals (Windle); A Multiple Instrument for Workshop Analysis (Taylor); Prediction from Stage to Stage of Training (Parnicky & Kahn); The Vocational Capacity Scale: Two Studies; A Study in Vocational Development (Shulman); Multivariate Analysis (Stephens); Multivariate Prediction (Bower & Switzer); The Outcomes of Research; Implications for Vocational Counseling.

1931 HAKA, KATERINA. The use of developmental tests as diagnostic tools in mental retardation. In: Waldon, Edgar F., ed. *Differential Diagnosis of Speech and Hearing Problems of Mental Retardates.* Washington, D. C., Catholic University of America Press, 1968, p. 67-82.

Developmental tests can be used to identify early aberrations of growth and development. They allow for a comparison of a child's developmental level with the average level for his age, can establish rate of development, and provide a measure of every deviation from normal development. Developmental testing should provide evaluations of gross and fine motor development; sensory-motor skills; and adaptive, language, and personal-social development. A diagnosis of MR should be based on carefully interpreted data obtained from a detailed history, physical and developmental examinations, and repeated follow-up examinations. (30-item bibliog.) - *J. K. Wyatt.*

1932 GOLDSTEIN, ROBERT. Electrophysiologic technics for testing the hearing of mentally retarded children. In: Waldon, Edgar F., ed. *Differential Diagnosis of Speech and Hearing Problems of Mental Retardates.* Washington, D. C., Catholic University of America Press, 1968, p. 85-102.

Electrodermal audiometry (EDA) and electroencephalic audiometry (EEA) are forms of electrophysiologic audiometry which can be used to test children's hearing. Although EDA was originally developed to test individuals whose hearing thresholds could not be easily determined by more conventional procedures, it has not been successful with MRs, very young children, or children who are difficult to restrain physically. EEA has been the most successful special audiometry test for infants and young children, and in some cases, it has provided quantitative data which could not be obtained from other tests. However, EEA can be quite a subjective test unless the objectivity of the tester's judgments of responses is carefully maintained. EEA can be used with the average response computer to assure objectivity. It is the most promising test and may be used in the future to identify patterns of response which are unique to MR children. (No refs.) - *J. K. Wyatt.*

1933 LLOYD, LYLE L. Operant conditioning audiometry with mentally retarded children. In: Waldon, Edgar F., ed. *Differential Diagnosis of Speech and Hearing Problems of Mental Retardates.* Washington, D. C., Catholic University of America Press, 1968, p. 103-121.

Tangible reinforcement operant conditioning audiometry (TROCA), social reinforcement operant conditioning audiometry (SROCA), and multiple reinforcement operant conditioning audiometry (MROCA) procedures were used to obtain definitive audiometric data on institutionalized PMR children. A one-button response procedure and a Beltone clinical audiometer were used. Reinforcement was liquid or solid food (TROCA condition), caressing and patting (SROCA condition), or a combination of food and social reinforcers (MROCA condition). Ss were 50 institutionalized PMR children (CA 6 to 21 yrs) who were classified as difficult to test by the institution audiology program and as untestable with standard psychometric tests. After an effective reinforcer was determined, each S received initial training, sound field screening, and bilateral screening and testing. Of 42 Ss (84%) for whom tone control was established, TROCA was used with 34, SROCA was used with 6, and MROCA was used with 2. Pure tone data on 39 of these Ss revealed 23 cases of essentially normal hearing, 1 case of profound unilateral loss, 8 cases of mild bilateral hearing loss, 3 cases of moderate to severe hearing loss, and 4 cases of profound bilateral hearing loss. Between 4 and 50, 10- to 20-minute sessions were required to obtain definitive audiometric data for each S, and 36 reinforcements were delivered during each session. (24 refs.) - *J. K. Wyatt.*

1934 WALDON, EDGAR F. Techniques for determining hearing thresholds of mentally retarded children. In: Waldon, Edgar F., ed. *Differential Diagnosis of Speech and Hearing Problems of Mental Retardates*. Washington, D. C., Catholic University of America Press, 1968, p. 122-150.

Results of 4 studies, in which the hearing thresholds of 87 MR and 38 normal children were determined, demonstrate that the Baby Cry Tests (BCT) can be successfully used to test the hearing of MR and normal children. The BCTs were reliable and more effective with MRs than Electrodermal Response Test audiometry, and the thresholds determined by them were lower than puretone thresholds. Significant factors which can affect test results or thresholds include the establishment of rapport; the child's age, physical condition, and ability to respond; the acoustic qualities of the test signal; the testing environment; the instrumentation; the response methods; the time spent on testing; and the clinical experience of the examiner. Informal, semiformal, and formal hearing tests may be placed along a continuum, and a pyramid of thresholds may be used to illustrate various levels of testing. Examiners can use the continuum and pyramid to select either a test suited to the child's ability or a level at which a particular test can be used to determine hearing levels. (No refs.) - *J.K. Wyatt.*

1935 BORTNER, MORTON. Psychological testing with brain-injured retarded children. In: Waldon, Edgar F., ed. *Differential Diagnosis of Speech and Hearing Problems of Mental Retardates*. Washington, D.C., Catholic University of America Press, 1968, p. 153-158.

The major purpose of psychological testing with brain-injured MR children is to identify cognitive strengths and deficits. Cognitive dysfunction in brain-injured children is frequently observed in the areas of intelligence, attention, perception, and thinking. Assessment procedures should avoid easy generalizations of dysfunctions and provide specific descriptions and concrete identifications of abilities and disabilities, and the kinds of fluctuations evidenced by them. (5 refs.) - *J.K. Wyatt.*

1936 BORTNER, MORTON. Psychological evaluation of perceptual deficit. In: Waldon, Edgar F., ed. *Differential Diagnosis of Speech and Hearing Problems of Mental Retardates*. Washington, D.C., Catholic University of America Press, 1968, p. 159-164.

Psychological evaluation of perceptual deficit, which is based on a levels of intactness concept, views perceptual functioning in finer detail than evaluation based on a unity of visual-perceptual process concept. The levels of intactness concept may eventually be used to reclassify those groups previously classified as perceptually impaired into a number of subgroups whose abilities are defined in terms of levels of complexity. When perceptual deficit is observed in any sense system, the interconnectedness of the various sense systems and the intactness of their liaison should be investigated. Clinical assessment of the intersensory liaison in MR children may provide data against which cognitive and cognitive-motor development can be compared. (7 refs.) *J.K. Wyatt.*

1937 BLANCHARD, IRENE. A study of articulation tests suitable for use with institutionalized mentally retarded children. In: Waldon, Edgar F., ed. *Differential Diagnosis of Speech and Hearing Problems of Mental Retardates*. Washington, D.C., Catholic University of America Press, 1968, p. 167-207.

Three experimental tests, 3 picture book articulation tests, and 3 pictures-on-cards tests were used to administer 548 tests of articulation to 131 institutionalized MR children (IQ range 20-71). In the experimental tests, developed for this study, objects were substituted for pictures (Object Test), questions were used to elicit prescribed words (Questions Test), and pictures from magazines were used as stimuli (Magazine Picture Test). The picture book articulation tests were the San Francisco Articulation Profile (SFAP), the Mecham Articulation Test for Young Children, and the Templin-Darley Tests of Articulation. Pictures-on-Cards tests were the Laradon Articulation Scale, the Clarke Phonetic Inventory, and the Bryngelson-Glaspey Speech Improvement Cards. The Object test was the fastest and most pleasing mass screening test as well as the most flexible instrument for repeated tests. It was the most discerning test of consonants not established in a child's speech. The Mecham test was easily administered by inexperienced examiners; the SFAP was effective with emotionally disturbed children; the Questions Test was better with

older Ss than with younger Ss; and the Magazine Picture Test was a useful measure of language and perceptive performance. The pictures-on-cards tests were distasteful to many Ss. Criteria for the evaluation of articulation tests should include: appropriateness of stimulus material; efficiency for spotting either acceptable articulation or misarticulation; speed of administering, recording, and evaluating; availability and cost; ease of administration and assigning levels; and volume of records. (9 refs.) - *J.K. Wyatt.*

1938 BLANCHARD, IRENE. Diagnostic patterns of articulation. In: Waldon, Edgar F., ed. *Differential Diagnosis of Speech and Hearing Problems of Mental Retardates.* Washington, D.C., Catholic University of America Press, 1968, p. 208-214.

MR children have a typical speech which does not fit an expected pattern. It is characterized by bizarre substitutions, omissions of vegetative consonants, and unusual sound combinations. In an articulation study at Pacific State Hospital (California), institutionalized MR Ss exhibited distinctly separate speech patterns which included: language so deviant that it could not be evaluated by usual instruments (16%); deviant language with enough normal components so that it could be evaluated at the 2 1/2 and 3 1/2 year levels of articulation (56%), essential normal articulation at the 4 1/2 year level (14%), and articulation approaching adult patterns (14%). Two-thirds of the deviant speech exhibited by these MRs contained inconsistent and incomplete utterances of the sounds of speech. (5 refs.) - *J.K. Wyatt.*

1939 SCHIEFELBUSCH, R.L. Methods of studying language of retarded children. In: Waldon, Edgar F., ed. *Differential Diagnosis of Speech and Hearing Problems of Mental Retardates.* Washington, D.C., Catholic University of America Press, 1968, p. 215-238.

Speech science, psycholinguistic, linguistic, and interpersonal learning models of language may be used to study the language of MR children. Peterson's speech science model provides for the study of respiration, phonation, articulation, and audition as well as for the analysis of the nature of input. Linguistics systems can be profitably used to develop longitudinal data for individual children, to obtain information on the imitative or echoic behaviors and verbal retention abilities of MRs, and to describe linguistic patterns which may be unique to various types of populations. Psycholinguistic models are concerned with acquisition, the effects of disordered language processes on human behavior, and modified functioning as a result of language training. Psycholinguistics models combine the practices and principles of psychology with those of linguistics. Studies based on interpersonal language models have investigated the behavior of the speaker and the listener in the 2-person communication process as well as of factors which affect this behavior and the differential behavior of children and adults. (47 refs.) - *J.K. Wyatt.*

1940 BARBER, PRUDENCE S., & ROSE, DARRELL E. Bone conduction oscillator placement in testing hearing of selected groups of children. *American Journal of Mental Deficiency,* 73(4):666-672, 1969.

Ten children with superior intelligence (Group A) and 10 MR children (Group B) (CA 9-13 yrs) who were devoid of ear pathology were tested 3 times to obtain threshold measurements from the mastoid process and the forehead process with the contralateral ear masked. The forehead position had a less sensitive threshold than the mastoid at all frequencies for both groups. In terms of variability of thresholds, Group A demonstrated the smallest amount of variability at the mastoid placement and Group B demonstrated the smallest amount of variability at the forehead placement. (33 refs.) - *Journal abstract.*

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1941 BRICKER, WILLIAM A., & BRICKER, DIANE D. Four operant procedures for establishing auditory stimulus control with low-functioning children. *American Journal of Mental Deficiency,* 73(6):981-987, 1969.

Thirty-six institutionalized retardates were placed into matched quads and then randomly assigned to one of 4 treatments for establishing auditory stimulus control using operant procedures. Each treatment was programed and following criterion acquisition,

the S was given an audiometric evaluation using the same operant response. Prior training with light discrimination did not facilitate learning since the group exposed only to the auditory signal showed a substantial time savings in reaching criterion performance. No differential effect was observed on the auditory evaluation as a result of group assignment. Reliable hearing assessment was obtained for 33 of the Ss. (6 refs.) - *Journal abstract.*

Peabody College
Nashville, Tennessee 37003

TREATMENT AND TRAINING ASPECTS--EDUCATIONAL

1942 DUNN, LLOYD M. Special education for the mildly retarded--Is much of it justifiable? *Exceptional Children,* 35(1):5-22, 1968.

Socioculturally deprived children with mild learning problems who have been labeled as EMR need a better educational opportunity than is provided by current special educational placement and practices. There is a need for change because homogeneous groupings tend to put these children at a disadvantage, a court ruling has declared that track programs are a violation of the Fifth Amendment of the United States Constitution, these children actually do better in the regular classroom, and the labels attached to students in special education classes are most damaging to them. Regular classrooms are presently better equipped to deal with individual differences because of changes in school organization (team teaching, ungraded primary departments, and flexible groupings), curriculum (new method for teaching reading, new math, and programed materials), ancillary professional personnel (psychologists, guidance workers, physical educators, remedial teachers, teacher aides, and technicians), and hardware (computerized teaching, educational TV, and auto instructional devices). The blueprint for change includes departing from the conventional methods of diagnosing, placing, and teaching children to the implementation of diagnostic and clinical teaching, the discontinuation of the practice of disability labeling, the elimination of homogeneous groupings, and the utilization of special educators as team, itinerant, consultant, resource room, and/or remedial teachers. New curricular approaches should include environmental modifications, motor development, sensory and perceptual training, cognitive and language development, speech and communication training, connative (or personality) development, social interaction training, and vocational training. (28 refs.) *L. Kyle.*

No address

1943 STEPHENS, WILL BETH. Provisions for the young mentally retarded. *Education and Training of the Mentally Retarded,* 3(4): 180-188, 1968.

Since cognitive development is definitely measurable in infancy, MR infants can be identified and remedial training initiated. The Uzgiris-Hunt 6-series instrument can be used to identify changes in cognitive development from infancy to 2 years. The Denver Development Screening Test can be used as a supplement to cognitive measures. It detects early irregularities in the areas of gross motor, fine motor adaption, language, and personal social development. The early detection of deviant development and the introduction of preschool remediation can raise intelligence test scores. A tutorial program was based on identifying a child's level of development in a certain area, planning methods to raise development to the next level, and separating the learning task into logical steps. Haeussermann measures developmental levels in 2- to 6-year-olds and seeks to identify potential by eliminating assessment obstacles. The design of one preschool curriculum is based on the development of intellect, imagination, social behavior, emotional behavior, manipulation, gross motor abilities, self-help skills and language. Proposed priorities for early remediation in conjunction with medical and social programs include: preschool registration and the establishment of a central agency to supply the school with the background of an MR;

home-nurse visitations; small preschool classes; remediation; correct diets; and classes to aid transition during elementary grades before final placing. (14 refs.) *M. Plessinger.*

Temple University
Philadelphia, Pennsylvania 19140

1944 THOMAS, JANET K. *How to Teach and Administer Classes for Mentally Retarded Children.* Minneapolis, Minnesota, T. S. Denison, 1968, 74 p. $3.98.

School programs for MR children should always be of a developmental nature, should be consistent with individual learning ability, and should place primary emphasis on the development of a working relationship between the home and the school. Skill programs for MRs are aimed at the eventual transfer of learning, and instructional methods used with MRs are based on a combination of field and association theories of learning. Elementary school administrators should provide education for the complete range of individual differences in children, provide special therapeutic programs and the services of a variety of professionals and agencies, develop a relationship of mutual understanding and respect with the special education teacher, and find appropriate physical facilities for the special class. They should be involved in forming goals for special education, identifying pupils for placement in special classes, administrative scheduling, curriculum development and adaptation, and parent education. MR children need all the guidance services provided for other children as well as a special guidance program aimed at helping them understand themselves and their limitations. Teachers can maintain interest and skill development if they use a variety of exploratory, visual, and symbolic methods and materials at the same level of difficulty. This handbook should be of interest to elementary school administrators and special class teachers. (No refs.) - *J.K. Wyatt.*

CONTENTS: How to Teach and Administer Classes for Mentally Retarded Children: To Be Reproduced for Parent-Education Distribution; The School Program; Purposes of this Book and the Series of Teacher's Aides; The Administrator's Role; The Teacher's Role.

1945 TARJAN, GEORGE. Handicapped children in school: Reflections of a psychiatrist. *California Mental Health Research Digest,* 7(2):51-58, 1969.

Handicapped children are often placed in special education classes on the basis of a medical diagnosis rather than on the basis of motivation, attention, and learning ability in the classroom. There is a tendency to characterize the handicapped by the nature of the handicap and to ignore the rest of the child's personality. Although there is no doubt that personality is influenced by a handicap, parental responses to the handicap have a primary effect. Parental patterns of denial of infirmity, projection of guilt, self-blame, or the reaction formation of overprotection often impose additional problems upon a "different" child. Professional teachers would best be able to help this potpouri of handicapped children, if "special" education were based on specific learning disabilities rather than on vague and general "handicaps." (No refs.) - *E.L. Rowan.*

School of Medicine and Public Health
University of California
Los Angeles, California 90024

1946 LEMMERMAN, MARY ZENO. A survey of the educational provisions for slow learning children in the sixth grade in selected schools of the Cleveland diocese. *Research Abstracts: Cardinal Stritch College,* 9:66-69, 1968.

Educational provisions in reading, arithmetic, and spelling for 91 slow learners in the sixth grade (IQ 70 to 95) who scored below 6.5 on 4 or more subtests of the Stanford Achievement Test were investigated. In terms of reading provisions, 1/3 of the children were using standard sixth grade texts, and almost 1/2 were using multi-level reading kits. Teachers gave extra time to 30.7% of the children, and 13.2% of the parents helped at home. In arithmetic, all the children used regular texts, extra teacher time was provided for 49.5%, 22% received help from parents, and over 50% were regrouped for special lessons. Only 13 children were involved in a special grouping for spelling, and only 16 received extra teacher time. More than 50% of the students had repeated at least one grade, no child had received better than a C grade in reading or arithmetic, and nearly 1/4 had failed arithmetic. Most teachers wanted to use non-standard texts and felt that individual

instruction was the best teaching method. (No refs.) - *J.M. Gardner.*

No address

1947 MACKIE, ROMAINE P. *Special Education in the United States: Statistics 1948-1966.* New York, New York, Teachers College Press, Columbia University, 1969, 90 p. $2.25.

This quantitative report on trends in education opportunities for exceptional children in the United States from 1948 to 1966 is based on Office of Education statistics and focuses on progress in local public schools and public and private residential schools. Previously unpublished statistics for 1963 are included, and 1966 data are estimated. Between 1948 and 1966 pupil enrollment in special education programs increased by almost 500% (from 439,656 to 2,106,100), and the percentage of exceptional children in special education classes rose from 15% to 35%. Less than 1/2 (more than 540,000) of the MR children had access to special education programs in 1966, and 90% of these were enrolled in day school programs in full-time special classes. The number of MRs attending day school and residential programs increased by 400% over the 20-year period. However, between 10% and 12% (approximately 6 million) children in need of special programs did not have access to them in 1966, and of these, 615,000 were MR. More than 1/2 of public school systems now provide for exceptional children (6,700 in 1966), and the number of exceptional systems with programs for MRs increased from 729 in 1948 to 6,003 in 1966. Between 1958 and 1966, the number of pupils enrolled in nursery school and kindergarten programs rose from 5,226 to 50,000, and the number of MRs participating in these programs increased from 996 to 1,400. From 1948 to 1966, programs for older exceptional children increased 8-fold (from 50,486 to 448,000), and secondary programs for MRs grew from 12,518 to 141,900. The number of special education personnel has risen from 16,234 to 82,000 over the 18-year period, and personnel for MR education have increased from 6,178 to 32,300. This book should be of interest to educators and special educators, and to legislative personnel responsible for initiating and funding special education programs. (20 refs.) - *J.K. Wyatt.*

CONTENTS: Advances in Special Education; Pupil Enrollments Are Increasing; Opportunities Increasing Yet Still Inadequate; More Communities in More Geographical Areas Serve Exceptional Children; Exceptional Children Start School Earlier and Stay Longer; Administrative Flexibility Adds Opportunities for Exceptional Children; Increase in Special Educators; Trends, by Area of Exceptionality; Pupil Enrollment by States; Summary.

1948 LITTLETON, ARTHUR C. The mentally retarded: They deserve more. *School and Community,* 55(9):28-29, 1969.

Schools should provide more education and training for the MR. Since it is more difficult for the MR to learn, they should have earlier, more specialized, and more prolonged training to enable them to cope with educational demands in school and meet society's standards in competitive employment, personal attitudes and appearance, and general adjustment. (No refs.) - *E.F. MacGregor.*

University of Missouri
Saint Louis, Missouri 63100

1949 RAPPAPORT, SHELDON R. *Public Education for Children with Brain Dysfunction.* Syracuse, New York, Syracuse University, 1969, 219 p. $6.50.

Habilitation programs for children with brain dysfunction should be the responsibility of the entire community and should be based on a comprehensive conceptual model. The conceptual model presented in this book views the child as a 3-dimensional totality, with dimensions of current skill complexes, previous skill complexes, and experiences which are the result of previous and current skill complexes. The assessment of special skill deficiency must consider all other deficiencies and skills, experiences with and feelings about all skills and deficits, patterns of compensation for deficits, and the interwoven effects of all biological and experiential factors on the emerging ego. This model provides guidelines for the construction of a relationship structure with the child, the development of an educational structure for the child, and the evaluation of the effectiveness of habilitation procedures. The learning situation should be based on prescriptive teaching principles. Descriptions of the special physical characteristics necessary to the learning situation of a child with brain dysfunction, the classroom and equipment, educational programing, learning materials, a step-by-step approach to readiness development, and therapy for behavioral management are included. Parents of children with brain dysfunction may be treated through educational counseling and the examination of home prob-

lems. This book should be of interest to educators, special educators, school psychologists, and guidance counselors. (76 refs.) *J.K. Wyatt.*

CONTENTS: Our Current Status; Preparing the Community; Preparing the School; A Conceptual Model; The Classroom; Educational Programing; Readiness Development; Learning Materials; Behavioral Management; Parent Counseling; Conclusions.

1950 LABENNE, WALLACE. Grading: Discriminating or disintegrating. *Pointer,* 12(3):37-39, 1968.

The importance of a grading system for EMRs is dubious. Group standards set for the "average child" are usually too high or too low and result in frustration or boredom. Children should be considered individually and their goals discussed with them and set realistically. Instead of grading according to individual ability or pre-established group standards, or giving arbitrary marks between the highest and lowest grade, periodic assessment of the pupil's ability to accomplish his own pre-set standards should replace the report card. (No refs.) - *V.R. Shaffer.*

Community School District
Wayne, Michigan 48184

1951 DE LORENZO, ELOISA GARCIA ETCHEGOYHEN. *La Didactica: Un Desafio? (Didactics: A Challenge?).* Montevideo, Uruguay, Instituto Americano del Nino. Publicaciones sobre el Retardo Mental, No. 7, 1968, 12 p. $0.10.

The typology of educational objectives for MR children is closely related to the performance efficiency of the teacher in the areas of observation, diagnosis, and program development suitable to the needs, limitations, and potentialities of the students. The classroom should be essentially a research laboratory devoted to understanding and provoking changes in behavior. Education should focus on the development of civic responsibility, adaptation to a task, utilization of spare time, and getting along well with others. The typology of 3 educational objectives (social adaptation, arithmetic, and reading) of the School No. 1 of Recuperacion Psiquica (Psychical Recovery), Montevideo, Uruguay, is described, and schemes of observation and diagnosis for MR children are presented. (5 refs.) - *G. Pura.*

Instituto Americano del Nino
Montevideo, Uruguay

1952 BELL, BESS. Nursery education and the child with special needs. *Canada's Mental Health,* 16(6):3-10, 1968.

Preschools, day centers, and nursery schools should provide individualized programs for children with special needs. These children include the poor, MR, emotionally disturbed, those with sensory loss or damage, those with learning disabilities, the physically handicapped, and orphans. Education geared to individual needs can help these children obtain a fair share of our intellectual and material resources and keep them in the community. (8 refs.) - *M. Plessinger.*

New York State Department
of Mental Hygiene
Buffalo, New York 14200

1953 Blind und geistig behindert - Interview mit Herrn Direktor Eis, Rheinische Sonderschule fur Blinde (Blind and mentally retarded - Interview with the principal of the special school for the blind of the Rhine, Mr. Eis). *Lebenshilfe,* 7(1):16-21, 1968.

The combination of blindness or severe sight defects and MR presents a number of special education problems which have not been effectively dealt with in Westphalia (Germany). Most of these children live with their parents, and often do not receive adequate education and training. In some cases, they may be admitted to a special home in Duren; however, this home is for those who are at least TMR. At this home, children are trained to orient themselves and, if possible, are taught a skill with which they can partially support themselves. One important aspect of their education is physical training, since they often show poor muscle tone as well as lack of coordination. Physical training is augmented by lessons in rhythm and music. Since there are no sheltered workshops for the employment of blind MRs, they usually remain in this institution or are transferred to a general home for the MR. (No refs.) - *S.L. Hamerstey.*

No address

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1954 SILVA ARMAS, ALFREDO. El retardado mental en la educacion contemporanea (The mental retardate in contemporary education). *Ninos*, 1(1):43-54, 1968.

The objectives of education for MR children are the same as for normal children, namely, personal fulfillment, and the development of social adaptation, economic sufficiency, and civic responsibility. The curriculum is less oriented toward academic courses and more oriented toward courses that will help MRs to achieve a rapid integration into society with some degree of economic and personal independence. Education is carried out in special schools or in special classrooms in regular schools. The advantage of the latter arrangement is that MR children can socialize with normal children in areas in which they have similar capabilities. The size of a class is 13 students/teacher for EMRs and 10 students/teacher for TMRs. Class homogeneity is desirable with respect to intellectual level, degree of social adaptation, chronological age, emotional and educational behavior, and physical development. Teaching techniques for MR children are similar to those for normal children; however, they require a higher degree of organization. Sequential steps which include all essential information should be used. (5-item bibliog.) *G. Pura.*

No address

1955 CRATTY, BRYANT J. *Motor Activity and the Education of Retardates.* Philadelphia, Pennsylvania, Lea & Febiger, 1969, 233 p. $8.75.

Carefully planned, correctly applied movement experiences can help some MR children to function better in the family, classroom, and environment and can have a positive effect on their perceptual, intellectual, and emotional attributes. Movement activities can be used to identify children with potential learning problems and to help hyperactive children reduce their activity levels and increase their attention spans. Normative data and test batteries on movement and performance capacities may be used to measure the performance attributes of MR children and to plan enrichment programs for them. Teaching methods for MRs should focus on teaching for transfer, creating conditions which will result in maximum retention, using appropriate teaching cues, and providing a distraction-free environment. Remedial techniques for the development of drawing should encourage freedom of hand-arm movement and the improvement of accuracy. Muscular exercise programs to improve strength, flexibility, and endurance should be designed to motivate the children to participate vigorously. Programs for the improvement of large muscle control should contain tasks for balance, agility, and ball-handling. Teachers should have adequate insight about each child's general self-confidence with motor activity, aspiration level, and body-image. Music, rhythmics, and learning games may be used as helpful adjuncts to traditional techniques. This book would be of interest to curriculum specialists, school psychologists, supervisors of special education, special education teachers, and parents of MRs. (268 refs.) - *J.K. Wyatt.*

1956 TAYLOR, Z. ANN, & SHERRILL, CLAUDINE. *A Health-Centered Core Curriculum for Educationally Handicapped Children.* Palo Alto, California, Peek Publications, 1969, 130 p. (Price unknown).

The focus of this health-centered core curriculum for EMRs, which utilizes a developmental-sequence framework, is learning by doing. The curriculum provides opportunities for success and achievement and can be adapted to the past experiences, present functioning level, and prognosis of an individual. Content builds on what is known, progresses from the concrete to the abstract, and does not impose limits on individual abilities or disabilities. Daily living activities are built around a central theme, and experience units in the areas of eating, cleanliness and grooming, and indoor and outdoor safety emphasize this theme. Activities are appropriate for normal (CA 4-7), EMR (CA 5-8), and TMR children (CA 9 and up). This teaching method would also be useful for children with perceptual problems, because it emphasizes the optimal use of all sense modalities and the development of balance, direction, laterality, and awareness of space. Special education teachers, parents, and recreation and health personnel would find this book useful. (41-item bibliog.) - *J.K. Wyatt.*

CONTENTS: Curriculum Planning; Perceptual Motor Training through Movement Exploration; The Teaching-Learning Process; Personal Health in Relation to Eating; Personal Health in Relation to Cleanliness and Grooming; Indoor and Outdoor Safety; Evaluation of Progress.

1957 ALCUIN, M. *Basic Training Program.* Jefferson, Wisconsin, St. Coletta Schools, 1968, 80 p.

Basically, the training program revolves around the Doman-Delacato philosophy and

approach with their Developmental Profile used as a frame of reference. Special attention is given to the areas of sensory and motor training and social skills. These are considered to be requisite to academic learning. Sensory training revolves around the various senses: visual, auditory, tactual, olfactory, and gustatory. Motor training covers gross motor patterns (walking, running, creeping, crawling, rolling, and sleep positions), body-awareness, and fine motor skills (eye movement, manual dexterity). Social skills, such as religion, social etiquette, language, and emotional stability, are taught. Various instruments (Doman-Delacato Developmental Profile, Illinois Test of Psycholinguistic Abilities, Body-Awareness Test, Developmental Test of Visual Perception, Stanford-Binet Intelligence Test, and achievement tests) are used in periodic evaluations of the children's neurological, intellectual, and social functioning. (42 refs.) - *J.M. Gardner.*

CONTENTS: Philosophy of the Program, Doman-Delacato Profile, Sensory Training, Motor Training, Patterning, Body-Awareness, Fine Mobility Patterns, Language and Speech, Manual Competence, Cortical Hemispheric Dominance, Social Training, Evaluation, Teaching Materials.

1958 HART, JANE, & JONES, BEVERLY. *Where's Hannah? A Handbook for Parents and Teachers of Children with Learning Disorders.* New York, New York, Hart, 1968, 272 p. $8.50.

Movigenic theory emphasizes the relationship between movement and learning efficiency and was used as a social model to guide parents in a child-rearing curriculum and as a basis for a training program for a spatially-naive CP girl with learning disorders. Hannah exhibited hyperactivity, perseveration, social and intellectual retardation, moodiness, excitability, distractibility, and destructiveness. Standard intelligence tests placed her IQ at 49 until she was 9 1/2. At this age, after movigenic training, her potential IQ was set at 125. Hannah's learning environment was structured to control stress factors, and activities emphasized the development of muscular strength, postural alignment, body awareness, spatial awareness, and the perceptual processing modalities. Recreation and household activities were structured to help develop bilaterality, rhythm, and motor planning. Children with learning disabilities have a unique organization of the perceptual modes. Parents can analyze the ways in which each modality is used and the level of development of each perceptual system, and provide success experiences by adapting the world to the child's performance levels. The child must learn to fit into the family unit and to depend on his parents and begin to develop independence. Parents can help the learning process by being consistent, knowing when to change, keeping control, anticipating and planning, and forgiving mistakes. The information on the development and training of this brain-injured child, discussions of movigenic theory and its application, and descriptions of methods used to improve perceptual-motor competency would be of interest to parents of learning disabled children, educators, psychologists, neurologists, pediatricians, psychiatrists, and speech and hearing therapists. (51 item bibliog.) - *J.K. Wyatt.*

CONTENTS: What Is Hannah?; Who Is Hannah?; Where Is Hannah?; How Can Hannah Learn?; How To Live with Hannah?; How Hannah Can Learn to Live with Herself?; Where Is Hannah Going?; Hannah Today; Why Is Hannah?; An Early History of Hannah; National Organizations Which Aid Handicapped Children.

1959 SHIREY, DANIEL KARL, JR. Productive thinking in educable mental retardates as a variable of school achievement. *Dissertation Abstracts,* 29A(1):155-156, 1968.

The relation of productive thinking ability (PTA) interacting with mental age (MA) to academic achievement and teacher preferences was investigated in a 152 special class EMRs (CA range 12 to 16 yrs). PTA was measured by the Minnesota Tests of Creative Thinking, MA was measured by the Stanford-Binet Intelligence Scale, academic achievement was evaluated by the Stanford Achievement Tests, and teacher preference was determined by the Student Classroom Behavior Scale. The Ss were placed into 1 of 4 groups depending on whether they were in the top or bottom 1/3 of the group on PTA and MA scores. Analysis of variance indicated that PTA and MA related significantly to achievement and teacher preferences. Although the correlation between PTA and MA was low, both were associated with academic achievement. Ss with low MA and high PTA had achievement levels comparable to Ss with high MA and low PTA. Teachers preferred Ss who were high in either MA or PTA, not both. (No refs.) - *A. Huffer.*

No address

1960 ROSS, SHEILA. Effects of an intensive motor skills training program on young educable mentally retarded children. *American Journal of Mental Deficiency*, 73(6):920-926, 1969.

In a 6-month training program, skills basic to games and sports played by children in the elementary grades were taught in game contexts to young EMR children. EMR children were assigned to either experimental or control groups. Average children provided test data for evaluating the progress of the experimental group following the latter's participation in the program. EMR children were far below average children on the skills measured. With training, the experimental group improved ($p<.001$) and this improvement brought the group's scores to a point which did not differ statistically from the average group. With participation in the physical education program for special classes, the control group showed no improvement. (14 refs.) *Journal abstract.*

860 Bryant Street
Palo Alto, California 94301

1961 HAWAII. DEPARTMENT OF EDUCATION, SPECIAL SERVICES BRANCH, OFFICE OF INSTRUCTIONAL SERVICES. *Creative Ways of Teaching the Mentally Handicapped.* Honolulu, Hawaii, 1966, 52 p. (Price unknown).

Numerous creative ways to teach the TMR are used at the Pohukaina School (Hawaii) where free and organized learning activities are part of a daily structured program. The needs, accomplishments, and learning rate of the TMR must govern the teachers' procedures. Opportunities must be made available for the TMR to realize and attain success, leadership, sense of responsibility, personal identity, self-esteem, and proper attitudes toward work, and to establish wholesome interpersonal relationships in the home, school, and community. The use of automobile tires, gym mats, bowling pins, calisthenics, bean bags, balls, and tinker toys when presented in terms of developmental sequences can aid in the realization of these goals. At Pohukaina, the TMR students are taught to perform independently a series of household living tasks. Nutrition concepts, preparation and serving of food, and field trips to supermarkets are instrumental teaching mechanisms. Gardening and musical experiences provide a challenge and an opportunity for practice of dexterity skills and give each child a chance to exhibit his successful activity. (16 refs.) *S. Half.*

1962 ASERLIND, LEROY. Research: Some implications for the classroom. *Teaching Exceptional Children*, 1(2):42-54, 1969.

Research findings must be interpreted for use in MR curriculum innovations in instructional materials and in classroom procedures. Teaching materials should be designed to hold the shorter attention span of MRs and should not contain confusing abstractions or distortions. Learning should be meaningful and programed in short steps. The teacher should encourage interpersonal relations between child and adult. Repetition of learning promotes retention and the development of a sense of achievement. Since social and emotional growth are frequently greater than intellectual development, the format and design of instructional materials should be geared to social age. The Peabody Language Development Kit utilizes almost all of the elements of quality instruction. Teachers should present class procedures so that MRs can understand them. Motor learning should be a regular part of the curriculum and should include instruction in gross and fine skills and vocational training. Role playing can be used to help the MR to see another point of view and to promote communication. (63-item bibliog.; 65 refs.) - *M. Plessinger.*

Special Education Instructional
Materials Center
University of Wisconsin
Madison, Wisconsin 53706

1963 BANAS, NORMA, & WILLS, I. H. The vulnerable child and prescriptive teaching. *Academic Therapy Quarterly*, 4(3):215-219, 1969.

In evaluating a child with a learning disability, it is important to assess functioning in intellectual, perceptual, physical, and developmental areas. A prescriptive program based on analysis of test scores from the Wechsler Intelligence Scale for Children, the Illinois Test of Psycholinguistic Abilities, and the Detroit Tests of Learning Aptitude is presented. Test scores can be used to outline areas of strength and weakness, and to program teaching procedures. (3 refs.) - *J. M. Gardner.*

Educational Guidance Services
Miami, Florida 33100

1964 HAWORTH, MARY R., AUVINEN, CORINNE, C., & SCOTT, KARLYN P. Improving perception: A multisensory approach. *Teaching Exceptional Children*, 1(2):33-41, 1969.

A special nursery school program was designed to develop the visual motor skills of MR children (CA 3 to 8 yrs) who evidenced minimal creativity, curiosity to draw, or verbalization. The program was designed to teach form awareness, form construction, and form drawing. Triangles, squares, and circles were used for form recognition, and the children fitted them into slots, nested them, and felt them without looking. A human figure and a house were put together with pipe cleaners on a felt board, and on pegboard. The children drew between dots and around a human form or house, and then copied them. Small or individual tables were used to help the children focus their attention. The use of a logical sequence in drawing and directionality from left to right were encouraged. When teaching form, all pieces were the same color to provide an awareness of shape. A study group of 7 boys (CA 4 1/2 to 6 yrs; MA 3 to 4 yrs) were tested and drew a house and a man which were graded on a 12-point scale on detail and accuracy. These Ss were given presentations on form recognition, construction and drawing. Four had 65 to 82 exposures in 11 to 12 weeks, and 3 had 110 to 158 exposures in 20 weeks. They gained an average 5 points in drawing by the end of the study. (4 refs.) - *M. Plessinger.*

Research Scientist Development Section
National Institute of Mental Health
Chevy Chase, Maryland

1965 DEVER, RICHARD B. A proposal to teach English as a foreign language to educable mentally retarded children. *Exceptional Children*, 35(5):367-370, 1969.

Teaching English as a foreign language (TEFL) can be used to help mildly retarded children to function better in school and in the community. The basic concept of TEFL is that language is a system of spoken patterns, and its prime goal is to teach mildly retarded children all possible ways of expressing themselves within a given period of time. TEFL uses a sentence frame, a device that abstracts a language pattern so that it can be taught. TEFL emphasizes what the MR must be taught to do, not what they cannot do. It implements contrasting patterns, oral drills, and language models and provides opportunities to imitate and practice learned material. These methods should be used with preschool children as they learn more readily than older children. The major limitation in this improved use of language is that children with organic impairments cannot be helped to a significant degree. (23 refs.) - *S. Half.*

University of Wisconsin
Madison, Wisconsin 53706

1966 THOMAS, JANET K. *Teaching Reading to Mentally Retarded Children.* Minneapolis, Minnesota, T. S. Denison, 1968, 86 p. $3.98.

An eclectic approach to the teaching of reading to MR children emphasizes a kinesthetic approach as well as the strong points of phonic and visually oriented approaches. A special education reading program requires the use of special techniques and should not be a "watered down" version of the regular reading program. It should consider the characteristics of the individual child and those of MRs as a group, and it should use an arrangement of skills and skill sequences which is completely different from the regular program. Formal instruction should begin with a readiness program which teaches the skills needed in the beginning reading program and develops readiness at each new reading level. Children in elementary school special education programs usually begin reading between the ages of 8 and 12 years and usually do not progress beyond a third grade level. The developmental skills necessary for reading are analyzed and integrated into a unified program. Teaching materials, teacher made games and devices, suggestions for reading progress bulletin boards, and miscellaneous devices are described and illustrated. This book would be of interest to special education teachers. (No refs.) - *J. K. Wyatt.*

CONTENTS: Introduction; Reading Areas Readiness; Developmental Skills; Phonics; Independent Reading; Choral Reading; Group Instruction; Individualized Reading and Programed Reading; How Does Mental Retardation Affect Learning to Read; The School Program; Instruction; Games and Play Activities; Teaching for Meaning; Daily Work Schedules; Reading for Trainable Retardates; Teaching Materials Section; Teacher Made Games and Devices; Bulletin Boards; Miscellaneous Devices; Summary.

1967 THOMAS, JANET K. *Teaching Language Arts to Mentally Retarded Children.* Minneapolis, Minnesota, T. S. Denison, 1968, 64 p. $3.98.

Language arts form the basis of all public school educational programs for MRs and should be taught in a systematic and planned developmental sequence. Since language development

of MR children is generally closer to their MAs than their CAs, teachers should employ skill development programs which progress from the simple to the complex through a progressive series of developmental stages and are aimed at the expansion and improvement of communication skills and at enabling each child to develop maximum use of his language abilities. Curriculum content should be determined by the children's interests, needs, abilities, and developmental levels. Listening, speaking, and writing skills should be taught in isolation and in the context of the total school program. The teaching of reading should be preceded by a strong readiness program. This handbook includes general information on the language development of MR children, general and specific methods for teaching communication skills to MRs, and suggestions for and descriptions of basic instructional materials which may be used to provide visual and auditory stimuli. Elementary school teachers of MRs and curriculum planners should find this book of interest. (No refs.) - *J. K. Wyatt.*

CONTENTS: What is Language Arts? How Does Mental Retardation Affect the Learning of Language Arts? The Need for Home-School Cooperation; Language Arts Areas; The School Program; How to Begin Instruction; Speech Training; Telephones and Telephone or Conversational Courtesies; Listening; Writing; Language Arts for Trainable Retardates; Materials Section; Summary.

1968 THOMAS, JANET K. *Teaching Arithmetic to Mentally Retarded Children.* Minneapolis, Minnesota, T. S. Denison, 1968, 74 p. $3.98.

A special education arithmetic program should begin when a child has an MA of 6 or 7, should use a developmental curriculum, and should emphasize skill learning which will be of value in everyday life. Program goals should aim at the development of an understanding and use of arithmetical vocabulary, number concepts and skills, the ability to apply number concepts to the problems of daily life, and an understanding of fractions. Teachers can use charts and word lists to build an arithmetic vocabulary, and commercial and teacher-made games will facilitate the teaching of difficult concepts. Work schedules should be flexible and should allow for a short activity period, schedule adjustments, and the short attention span of MR children. Exploratory, visual, and symbolic teaching materials may be used for problem solving, the illustration of methods, discoveries about number facts, hypothesis verification, and score keeping in games. Instructional materials and games, and bulletin board and drill materials are described and illustrated. This book would be of interest to special class teachers of both EMRs and TMRs. (No refs.) *J. K. Wyatt.*

CONTENTS: How Does Mental Retardation Affect the Learning of Arithmetic; The School Program; How to Begin Instruction; Developing Interest; The Instructional Method; The Use of Games in Arithmetic Instruction; Teaching Left to Right; Teaching for Meaning; Arithmetic for Trainable Children; Daily Work Schedules; Teaching Materials; Independent Work; Teacher-Made Games and Devices; Bulletin Boards and Drill Materials; Miscellaneous Materials; Summary.

1969 DAVIS, PATRICIA A. *Teaching Physical Education to Mentally Retarded Children.* Minneapolis, Minnesota, T. S. Denison, 1968, 60 p. $3.98.

Physical education activities for MR children should be designed to meet their physical needs and adapted to individual interests, capabilities, limitations, and mental levels. Although MR children are not as physically fit as normal children, a good physical education program can enhance the development of respiratory and organic systems, neuromuscular skills, interest in play, active use of leisure time, and moral and social standards. Many basic skills which are learned automatically by normal children must be taught rather intensively to MR children. The greatest teaching difficulty is in discovering a teaching level that reaches the MR child. Teaching methods, particularly for TMRs, should be aimed at the mental rather than the physical level of development. Teaching methods for the development of the basic skills of walking, running, tiptoeing, jumping, hopping, skipping, galloping, and sliding as well as for a variety of games and physical education activities are discussed. A summary of specific skills which TMRs and EMRs should acquire by the conclusion of the primary grades and information on the specific components of, and remedial practices for poor postural patterns are included. This book should be of interest to physical education teachers, recreation personnel, and parents of MRs. (No refs.) - *J. K. Wyatt.*

CONTENTS: The Physical Education Program; Hints for Teaching the Retarded Child; Basic

Skills; Rhythms; Games; Rhythm Games; Volleyball Unit; Lead-Up Games; Softball Skills; Softball Lead-Ups; Basketball Hints; Soccer Skills; Physical Fitness; Stunts and Tumbling; Relaxation Activities; Summary.

1970 WIDDOP, J. H. Physical Education and Recreation for Mentally Retarded Children. 11 p. Mimeographed.

MR children can profit from a structured program of physical education and recreation. A well balanced organized program can enhance the MR child's physical fitness, endurance, strength, and athletic achievement. A worthwhile program, excellent teaching, and sympathetic understanding of needs and problems contribute significantly toward adequate motivation for the MR child. Classes should be small and a series of sensorial gymnastics should be carefully arranged. Neuromuscular training can be accomplished, and military drills can have a special educational value for a great many MRs. Specific exercises have been designed to improve mobilization and coordination, increase attention span, and decrease hyperactivity. Physical education teachers of the MR should progress slowly, use repetition as a means of reinforcement of learning, and be patient, tolerant, and understanding. They should use a direct approach, provide clear directions and demonstrations, consider individual potential and limitations, permit the children to compete with themselves, provide incentives and goals which can be used to measure success and give sincere praise and recognition when indicated. (14 refs.) - *S. Half.*

McGill University
Montreal, Quebec, Canada

1971 KRAMER, PETER G. The physical educator. *Challenge* (Newsletter of Project on Recreation and Fitness for the Mentally Retarded), 4(3):7-8, 1969.

Physical education programs should help MR children develop their maximum potential and aid in the development of hand-eye coordination, motor patterns, and perceptual, manipulative, social, and vocational skills. Kephart's stages of human development and Piaget's categories of play development can be used to design programs which will help MR children to become useful, productive, and contributing members of society. (No refs.) *S. Half.*

Golden Hills Academy
Ocala, Florida 32670

1972 MEEHAN, T. ROGER. A comparison study in junior high physical education. *Pointer,* 12(3):29-30, 1968.

An intensive physical fitness program, which introduced new exercises, was used to enhance social adjustment by improving physical coordination in junior high MR boys. A comparative study conducted for 1 hour/day, 5 days/week over a 3-month period used performance standards based on *The President's Program of Physical Fitness.* Results revealed that the experimental group was superior to the control group on every task, and had developed more self-confidence, poise, and competitive ability. (No refs.) - *V. R. Shaffer.*

Special Classes
Butler, Pennsylvania 16001

1973 VALLETUTTI, PETER, & CHRISTOPLOS, FLORENCE. Wishful thinking... *Challenge* (Newsletter of Project on Recreation and Fitness for the Mentally Retarded), 4(3):6, 9, 1969.

MR physical education training should have clearly defined goals in areas such as health, coordination, strength, and endurance, rather than goals related to cognitive development. A task analysis approach to physical education makes the teacher more purposefully directed toward the goals set for each child and makes professionals responsible for the achievement of behaviorally identified goals. This approach allows for the elimination of irrelevant activities and causes the teacher and MR to focus on a specific goal. (No refs.) *M. Plessinger.*

Department of Physical Education
Coppin State College
Baltimore, Maryland 21200

1974 PENNINGTON, WARD R., & HUGHES, CHESTER RAY. Partlow tumbling developing well. *ICRH Newsletter,* 3(6):1, 4, 1968.

The primary goal of the physical education curriculum which includes tumbling at Partlow State School and Hospital (Alabama), is the development of the child through physical activities; tumbling helps to insure the development of emotional stability, physical strength and coordination, acceptable social habits, and mental alertness. Development of emotional stability is accomplished through communicating to the MR that he can succeed in this area. Through this success he learns that he can succeed in other areas, and he develops self-confidence and acceptable social

habits. Such development leads to modification of behavior. Instructions also help develop self-discipline. Basic tumbling exercises (head stand, head spring, hand spring, and forward roll) are described in terms of manner of execution, and teaching and safety points. (No refs.) - *M. E. McKee.*

Partlow State School and Hospital
Tuscaloosa, Alabama 35401

1975 HICKEY, CAROLYN. Bean bag develops physical skills, posture. *ICRH Newsletter,* 3(17):3-4, 1969.

Bean bags are useful in physical education programs for SMR students. They are an important aspect of organized activities and games which help to develop eye-hand coordination, good posture, balance, muscle control, strength, and improved social skills. (No refs.) - *J. M. Gardner.*

Riverdale School
Orange Unified School District
Orange, California 92666

1976 COLEMAN, ELEANOR. A changing role... *Challenge* (Newsletter of Project on Recreation and Fitness for the Mentally Retarded), 4(3):7, 9, 1969.

Although physical education has become important in MR education, physical improvement should not be the only goal. Research is needed to find the best physical programs for defined goals. Until then, teachers must offer a variety of programs based on their observations of MR progress and success. (No refs.) - *M. Plessinger.*

Girl's Physical Education
Duval County
Jacksonville, Florida 32200

1977 SCOTT, BETTY J. Garden gloves used to develop dexterity. *ICRH Newsletter,* 8(20):1-2, 1969.

Body and motion awareness were established in TMRs by physical education which utilized dyed garden gloves to direct the hand motions of the children. These motions were later put to music in order to improve concentration, respond-perform, and lengthen attention span. (No refs.) - *V. G. Votano.*

401 South Manchester Avenue
Orange, California 92666

1978 AUXTER, DAVID. Operant conditioning of motor skills for the emotionally disturbed. *American Corrective Therapy Journal,* 23(1):28-31, 1969.

A physical education program at the School for Exceptional Children was concerned with using free operant conditioning to develop physical and motor skills in 10 emotionally disturbed boys (CA range 9-12 yrs), 7 of whom were in the high EMR class. The basic motor skills of 4 Ss were within normal limits, and the remaining Ss had limited motor skill abilities. Two hundred and twelve possible sequences in the areas of physical, motor, and perceptual development were presented to each child at his own rate of progress. Marbles, tokens (which could be used to make purchases at a store), and progress charts were used as reinforcements. The personnel administering the program were developmental physical education college students. After one semester in the program the children had developed a desire to learn and were able to concentrate on a task. When the sequential activities were reinforced, the gains made by the children enabled them to participate in more complex games which required greater social contact. Four boys achieved higher social development and developed skills which allowed them to play in a group situation. Some of the children learned to function with social reinforcers and could derive motivation through intrinsic participation in a task. Functional levels and learning rates in motor skills development were higher and faster under this operant program than have been obtained in subsequent programs with these Ss. (3 refs.) *B. Parker.*

Slippery Rock State College
Slippery Rock, Pennsylvania 16057

1979 DOBBS, MARY CAROLYN. Retarded children do respond to good music. *School Musician Director and Teacher,* 40(6):60, 1969.

Classical music presented at weekly music periods and interspersed at intervals during the day provided a deep emotional satisfaction for a class of EMRs (CA 7 to 10 yrs) and enhanced their personal adjustment and enthusiasm for learning. The children's cultural horizons now include classical music. In addition, they learned that tunes can be presented in a number of different ways. (No refs.) - *A. Huffer.*

Box 1878
Grass Valley, California 95945

1980 WARREN, LINDA C. Help the exceptional child! *Music Journal*, 26(9):27, 46, 1968.

Music should be included in curricula for emotionally disturbed and MR children. To provide better music education, colleges should offer music education courses designed specifically for exceptional children, and administrators and teachers should assume responsibility for learning proper teaching techniques and include music for exceptional children in school programs. Music instruction for MRs should proceed at a slow pace and provide variety and simple presentations. (No refs.) - *V. R. Shaffer.*

No address

1981 MARPET, LOUIS, & PRENTKY, JOSEPH. Arts, crafts, and MR's. *Digest of the Mentally Retarded*, 5(1):7-8, 1968.

Arts and crafts are important for MRs because they are non-academic, offer opportunities for success, the discovery of dormant abilities, feelings of accomplishment, and social skills, and have therapeutic value. MR and normal children should be grouped homogeneously. The craft shop should be cheerful, and each period should provide enough time to finish a project. Close supervision of tools and simple and easy control routines are essential. The teacher should be imaginative, resourceful, and a real leader. (No refs.) *V. G. Votano.*

No address

1982 SUPPLEMENTARY EDUCATIONAL CENTER. *Games: A Collection of Developmental Activities.* (Staff Document). Public school systems of Clayton, Cobb, and Gwinnett Counties, Georgia. 1969, 18 p. (Price unknown)

Games based on the assumption of success were developed for MR to further motor skills, thinking, and interpersonal relations. A ball is used in the 5-team games which progress in difficulty of manipulation in vigorous activity. Creativity is needed for the 5 parallel games which use music, stories, and movement. Individual games use role-playing, imagination, and competition. Each of the 15 games has information on equipment needed, number of players, playing area, directions, and general learning goal. A teacher can modify games to meet special needs and goals. Evaluation of success is important using standardized tests, a rating scale, or questions on development. (No refs.) - *M. Plessinger.*

1983 MIDTLING, BARBARA. Vocabulary training. *Pointer*, 12(3):50, 1968.

Attempts by students to guess the contents of pictures distributed to EMRs in secondary level English classes stimulate vocabulary development. (No refs.) - *V. R. Shaffer.*

Thornton Township High School
Harvey, Illinois 60426

1984 SACKS, MARIAN. Language skills for trainable adolescents. *Pointer*, 12(3): 55-56, 1968.

SMR adolescent boys (IQ 23-50) engage in activities that develop language and discrimination. Color identification, word concept, and visual and auditory activities are described. Correct answers to tasks involving numbers are rewarded. (No refs.) - *V. R. Shaffer.*

Rosewood State Hospital
Owings Mills, Maryland 21117

1985 HAMMOND, GENEVIEVE. Classroom learning in a home atmosphere. *Pointer*, 12(3): 54-55, 1968.

A 3-bedroom home located near a primary school was converted into a classroom for 12 EMRs (CA 10-18 yrs). Each room has a distinct purpose--such as crafts and music, dining, social etiquette, and classroom activities--and emphasis is on the development of personal care and skills necessary for daily living. (No refs.) - *V. R. Shaffer.*

Elementary School District
Santa Maria, California 93454

1986 LEVERANCE, EUDORA. End of year activity *Pointer*, 12(3):56, 1968.

Autograph books made in class by TMR students (CA 7-16 yrs) are signed by classmates at the end of the school year. Evaluative comments from the teachers are also included. (No refs *V. R. Shaffer*

Hoover School
Neenah, Wisconsin 54956

1987 CRABB, HELEN. Junior high cooking projects. *Pointer*, 12(3):26, 1968.

Simplified cooking projects for junior high MRs provide vocational preparation and teach practical skills to be used in home life. These skills include how to read instructions, measurements, and thermometers; how to tell time; how to assume responsibility; habits of cleanliness and orderliness; increased vocabularies; and table manners. (No refs.) *V. R. Shaffer.*

Carrollton Georgia Junior High School
Carrollton, Georgia 30117

1988 CARY, HENRY B. Junior high newspaper activity. *Pointer*, 12(3):33, 1968.

The reading of eighth and ninth grade EMR students was stimulated through participation in a school project in which local newspaper items were selected, clipped, and shared with classmates. (No refs.) - *V. R. Shaffer.*

Shuksan Junior High School
Bellingham, Washington 98225

1989 YOUNGER, SYLVIA. Legible handwriting for senior high students. *Pointer*, 12(3):51-52, 1968.

Penmanship is demonstrated to senior high MRs by visual illustrations and verbal descriptions. Students participate by naming and writing places and things that begin with specific letters of the alphabet. (No refs.) *V. R. Shaffer.*

Elk Grove Senior High School
Elk Grove, California 95624

1990 ENIX, ELIZABETH. Senior high trip expands horizons. *Pointer*, 12(3):39-41, 1968.

Twenty-six senior-high students from a special education division of a large inner-city school in Indianapolis (Indiana) traveled by bus to Chicago (Illinois) for a 10-day field trip. Three chaperones accompanied the teachers, each of whom prepared lessons relating the tour to their particular academic subjects. Procedures were established and carried out to keep the students organized and prevent their straying from the group. (No refs.) - *V. R. Shaffer.*

Crispus Attucks High School
Indianapolis, Indiana 46200

1991 CENTER, CLARE. Senior high taped lessons. *Pointer*, 12(3):42-44, 1968.

Tape recorded lessons provide multisensory instruction for MRs in a secondary school. Lessons are prepared one week in advance and set up on tape stations located in a classroom which is supervised by 2 teachers. Students receive 25 minutes of instructional tape on subjects including news, reading, language, mathematics, and vocational preparation for 3 days/week. The lessons are summarized on the fourth day and students' absorption of the material is tested on the fifth day. (No refs.) - *V. R. Shaffer.*

Helmet California High School
Helmet, California 92343

1992 MIDTLYING, BARBARA. Dinner dance aids social development. *Pointer*, 12(3):50, 1968.

Dinner dances for teenage EMRs provide entertainment and opportunities to mingle with others and display their table etiquette. (No refs.) - *V. R. Shaffer.*

Thornton Township High School
Harvey, Illinois 60426

1993 ROTH, GERALD W. Graduation for retardates. *Pointer*, 12(3):45-47, 1968.

Educators and parents agree that a graduation ceremony is an important incentive for EMRs, but opinions vary on whether or not it should be part of regular commencement exercises, and on the awarding of a certificate of completion versus a diploma. (No refs.) *V. R. Shaffer.*

Special Education Division
Helena Public Schools
Helena, Montana 59601

1994 ORZACK, LOUIS H., CASSELL, JOHN T., & HALLIDAY, HARRY. *An Educational Work Experience Program for Secondary School Educable Mentally Retarded Students.* (Monograph Number 2 on the Pursuit of Change Series), Bridgeport, Connecticut, Parents and Friends of Mentally Retarded Children of Bridgeport, 1969, 49 p. (Price unknown)

Educational, vocational, social, and personal information were obtained by means of a questionnaire from all who had attended high school special classes in Bridgeport (Connecticut). Questionnaire results indicated that the work experience program needs to focus on educating the public regarding the program, creating a liaison with community agencies, involving parents, organizing an evaluation team, assigning duties so that coordinators and supervisors can devote more time to the program, utilizing a counselor from a local rehabilitation service, developing a reward program for trainees, providing guidance and placement services, rotating students among various work assignments, and providing special diagnostic and treatment services. A follow-up survey revealed that periodic study of the students is important, comparisons should be made between students with and without work experience, the guidance program must be improved, and information about how to use employment services is necessary. Personal information data revealed that others considered the ex-special class student as culturally different, 36% of them live in federal housing, 11% are married, 26% had obtained a driving license independently, and females had stayed in school longer than males. Social information indicated that 56% said they enjoyed high school, and 96% never belonged to social organizations even though 44% indicated a desire to belong to a club. Educational data indicated that 31% left high school because they did not like it, 18% left due to financial need, and 93% had never visited a guidance counselor. Vocational information revealed that 46% were presently employed, 61% were involved in unskilled labor, 57% had received salary raises, and 64% located jobs through friends, and only one person had contact with the Bureau of Vocational Rehabilitation although all would be eligible for that service. (No refs.) - *V. G. Votano.*

1995 McHUGH, BRIAN JOHN. Promoting the work-study program. *Pointer,* 12(3):47-49, 1968.

Work-study programs for EMRs require the cooperation of educators, employers, and parents. Methods of educating the public include literature, public speeches, parent information campaigns, an employer's guidebook, and adult classes. (No refs.) - *V. R. Shaffer.*

Brecksville Senior High School
Brecksville, Ohio

1996 DRUCKER, HOWARD. Adult education for the mentally retarded and physically handicapped. *Pointer,* 12(3):53, 1968.

The organization of education programs for physically and mentally handicapped adults is simplified when eligibility guidelines are established and the purpose of the program is clearly defined by its name. Sessions (2-3 hrs in length) should include basic academic, social, and vocational instruction. (No refs.) *V. R. Shaffer.*

Chris Jespersen School
251 Grand Avenue
San Luis Obispo, California 93401

1997 GUNZBURG, H. C. Teaching reading to the adult illiterate. *Remedial Education,* 2(3):82-88, 1967.

The problems presented by adolescent and adult illiterates to the reading teacher, considerations for the development of adolescent and adult reading books for illiterates, and a reading scheme are discussed. Instructors who teach adult illiterates find it difficult to work with the childish material provided; however, there are adult series entitled *Clumsy Charlie, Out With Tom,* and *Spotlight on Trouble.* Considerations to be made in developing reading material for illiterates are to make the books adult, to give immediate feelings of success, and to develop some reading skill in a very short period of time. (5 refs.) - *V. G. Votano.*

Monyhull Hospital
Birmingham, England

1998 KOELSCH, GEORGE J. III. Readability and interests of five basal reading series with retarded students. *Exceptional Children,* 35(6):487-488, 1969.

Differences in the readability and interest content of 5 basal reading series and of the relationship between the interest categories of third grade level basic readers and the interest patterns of EMRs were investigated. Eighteen EMRs (13 boys, 5 girls; mean CA 13

yrs 11 mos; mean reading level 3 yrs 6 mos) were given a comprehensive interest inventory. The George Spache Readability Formula was used to investigate differences in readability in third grade level basal reading series published by American Book Company, Harper & Row, Lippincott, Macmillan, and Scott Foresman. Chi square procedures were used to compare the interest content among the basal readers. There were no significant differences in readability among the basal reading series. However, there were statistically significant ($p<.01$) differences in interest content among them. Correlations between third grade basal reader interests and those of EMRs reading on that level were low. (3 refs.) - *J. King.*

Westmoreland County Board of
School Directors
Greensburg, Pennsylvania 15601

1999 BARNES, KENNETH. First words. *Parent's Voice,* 19(2):14-16, 1969.

A speechless, diligent 15-year-old MR boy said his first words in the classroom after learning sessions with a teacher. The boy made initial contact with the teacher by winking, and the teacher encouraged physical activity in which the boy played ball with a partner. She began private sessions, and the boy began blowing a whistle to provide self identity and an unrolling party squeaker to tighten face muscles. During class, he first vocalized the sound "burr," and the teacher immediately repeated it to show he could get a response. Finally, in a private session the boy said "ball," and the teacher replayed a tape recording until the words "box" and "book" were uttered. (No refs.) - *M. Plessinger.*

No address

2000 FLANAGAN, VERONICA. An experiment with disturbed children. *Teaching and Training,* 7(3):77-80, 1969.

Six very disturbed children were placed in a special class for 6 months with a teacher who was warm, understanding, and organized. Activities incorporated the use of sand, water, large gymnastic equipment, music, and building units. Forming stable relationships with one individual (the teacher) was most significant. (No refs.) - *V. G. Votano.*

Melrose House Training Centre
Waterloo, Liverpool, England

2001 DOWNING, JOHN. i.t.a. and slow learners: A reappraisal. *Educational Research,* 11(3):229-231, 1969.

A re-analysis of the effects of the initial teaching alphabet (i.t.a.) on slow learners' ability to learn to read revealed that i.t.a. reduces the incidence of poor reading and spelling before and after transition to traditional orthography (t.o.). The data were analyzed in terms of the proportions of Ss who made low scores on reading (Neale tests, Schonell tests, and Standish test) and spelling (Schonell) tests administered at various time intervals over a 4-year period. Comparison of the Ss' scores on test forms which used t.o. revealed that the i.t.a. group had a lower percentage of children in the low-scoring category than the t.o. group for all tests (differences ranged from 1.1% to 9.8%) except speed reading. To investigate the effects of t.o. on learning to read, the i.t.a. group was tested with i.t.a. orthography test forms, and the results compared with a t.o. group which used regular test forms. Again, the i.t.a. group had the lowest percentage of children in the low-scoring category (differences ranged from 12.5% to 26.8%, excluding speed reading). Four of the tests had 1/2 as many i.t.a. Ss in the low-scoring category as t.o. Ss. (8 refs.) - *A. Huffer.*

University of London
London, England

TREATMENT AND TRAINING ASPECTS--PSYCHO-SOCIAL

2002 GARDNER, JAMES M. Behavior modification research in mental retardation: Search for an adequate paradigm. *American Journal of Mental Deficiency*, 73(6):844-851, 1969.

The methodology and results of research on the application of operant conditioning techniques to the modification of the behavior of MRs were examined. It was concluded that, to some extent, all the studies have violated one or more of the following requirements of good experimental design: exact specification of all relevant independent variables; proper sampling techniques; use of adequate controls; and proper assessment of the dependent variable. Suggestions for future research were offered. (40 refs.) *Journal abstract.*

Columbus State Institute
1601 West Broad Street
Columbus, Ohio 43223

2003 Behavioral research in mental retardation: Goals for a new decade. *Alabama Journal of Medical Sciences*, 6(4):378-381, 1969.

Goals for behavioral research in the 1970s are: to integrate the current knowledge; to extend laboratory work to applied problems; to study the differences within MR Ss rather than the differences between MRs and normals; to become free of the restraints of the current classification systems; to develop research models uniquely relevant to MR; and to become more concerned with politics and policy-making. (No refs.) - *J.M. Gardner.*

No address

2004 BURCHARD, JOHN D. Residential behavior modification programs and the problem of uncontrolled contingencies: A reply to Lachenmeyer. *Psychological Record*, 19(2): 259-261, 1969.

One of the major problems facing behavior modification programs is uncontrolled contingencies. Even with adequate funds and sufficiently skilled personnel, the ambiguity involved in specifiying desirable and undesirable social behaviors makes the goal of increased monitoring difficult. One solution is to provide positive reinforcement for behaviors which produce alterations in the environment (sweeping floors, making an ash tray). This process can be facilitated by making reinforcement available during specific time periods. It remains to be shown, that this type of training transfers to other situations. (3 refs.) - *J.M. Gardner.*

Department of Psychology
Murdoch Center
Butner, North Carolina 27509

2005 BOSTOW, DARREL E., & BAILEY, J.B. Modification of severe disruptive and aggressive behavior using brief timeout and reinforcement procedures. *Journal of Applied Behavior Analysis*, 2(1): 31-37, 1969.

Positive and negative reinforcement (time-out) were effectively used with 2 Ss with different presenting symptoms. S 1 was an MR female (CA 58 yrs) wheel-chair patient who disrupted ward routine with loud and abusive verbalizations. She had not responded to a variety of tranquilizing drugs. S 2 was an MR boy (CA 7 yrs) who exhibited severe aggressive behavior and had also not responded to drug treatment. In both cases, the Ss were positively reinforced when engaged in adaptive behaviors, and negatively reinforced for target behaviors (screaming or aggression) by being placed in a time-out situation. In each case, target behaviors were reduced to low frequencies. Re-establishment of baseline conditions followed by re-introduction of reinforcement contingencies demonstrated the effectiveness of operant techniques. (13 refs.) - *J.M. Gardner.*

Southern Illinois University
Carbondale, Illinois 62903

2006 BARRETT, BEATRICE H. Behavior modification in the home: Parents adapt laboratory-developed tactics to bowel-train a 5 1/2-year-old. *Psychotherapy: Theory, Research, and Practice*, 6(3):172-176, 1969.

A toilet training program was instituted by the parents of a hyperactive MR boy (CA 5 yrs) who functioned at a very low level of competence. The program was suggested by consulting psychologists who monitored the child's progress from the parents records. The consistent application of positive reinforcement (cookies and praise) for proper bowel movements and negative reinforcement (restraint in a chair for 30-45 min) for inappropriate bowel movements resulted in a marked decrease in soiling and wetting. No remission of symptoms was noted for 6 months following treatment, and the child was enrolled in a private training school. This study points up the importance of a consistent and systematic approach to training. (10 refs.) - *J.M. Gardner.*

Walter E. Fernald State School
Waverley, Massachusetts

2007 CHURCHILL, DON W. Psychotic children and behavior modification. *American Journal of Psychiatry*, 25(11):1585-1590, 1969.

Operant conditioning techniques were applied to 15 children (11 males, 4 females; CA 3-7) diagnosed as either autistic or early childhood schizophrenic according to the DeMyer classification. In general, they manifested little language, engaged in stereotypic behavior, and had minimal self-care skills. The children were removed from their natural environments and placed in a small isolated room for 3 weeks where intensive food-contingent training occurred. They were then moved to a training ward. The parents were brought in to observe, participate, and finally to work with the child at home on weekends with a prescribed program. Target behaviors were prescribed by hierarchical orderings. Training included individual personal skills, play, independent work, and social interaction. During training many of the psychotic behaviors appeared or disappeared in relation to the success/failure ratio. Ceiling effects occurred with many Ss in terms of an inability of cross-modal transfer of training. In almost all cases improved social relations were noted. (8 refs) *J.M. Gardner.*

Department of Psychiatry
Indiana University Medical Center
Indianapolis, Indiana 46202

2008 BRAWLEY, ELEANOR R., HARRIS, FLORENCE R., ALLEN, K. EILEEN, & FLEMING, ROBERT S. & PETERSON, ROBERT F. Behavior modification of an autistic child. *Behavioral Science*, 14(2):87-97, 1969.

Positive (food and praise) and negative (isolation) reinforcements were applied to an autistic boy (CA 7 yrs) to increase appropriate and decrease inappropriate behaviors. Target appropriate behaviors included correct verbalizations, use of play materials, and the use of discrimination tasks in preparation for reading. Target inappropriate behaviors included tantrums, self-hitting, and nonsense verbalizations. Correct verbalizations increased from 2% (baseline) to approximately 46%, while self-hitting decreased from 15 to 3 %. Nonsense verbalizations declined from 3% to zero. A 4-day period of partial reversal (changing the contingencies to the opposite of the treatment procedure) demonstrated the importance of the reinforcement contingencies. Follow-up data at 3 months indicated maintenance of a high level of appropriate skills. (No refs.) - *J.M. Gardner.*

No address

2009 COHEN, P.H. Recognition and management of emotional problems in handicapped persons. *Rehabilitation in Australia*, 6(2): 14-18, 1969.

Due to feelings of inferiority, inadequacy, and defensiveness, handicapped individuals often develop emotional problems which must be recognized and treated if rehabilitation is to be successful. Lack of motivation, conflict, social relationships, sexual problems, aggression, phobias, anxiety, psychotic instability, and addiction are problems which commonly aggravate a handicap. These may be managed though medical treatment, psychotherapy, counseling, social groups, and remedial education. In order to rehabilitate these individuals, it is necessary to encourage feelings of acceptance, expression, social interaction, security, and optimism. (No refs.) - *V.G. Votano.*

Prince Henry's Hospital
Melbourne, Australia

2010 MANN, PHILIP H., BEABER, JAMES D., & JACOBSON, MILTON D. The effect of group counseling on educable mentally retarded boys' concepts. *Exceptional Children*, 35(3): 359-366, 1969.

Thirty six EMR boys (CA 9-13; IQ 56-80) who had behavior problems were divided into 2 groups (experimental and control) matched according to IQ, race, age, and socioeconomic status and then divided into 6 subgroups. The experimental group received group counseling over a 12-week period, and the control group worked in the library for the same period with a counselor who seldom spoke. Counseling to improve self image was provided by the counselor, and rapport was established with each member of the group. The Children's Form of the Manifest Anxiety Scale, Pupil Behavior Rating Scale, Index of Status Characteristics, Children's Self Concept Scales I and II, and the Way I Feel About Myself Scale were used to evaluate counseling effects. Counseling techniques included permissiveness, some direction, an opportunity for expressing aggression and hostility, the development of a major theme at each session, play therapy, and experience sharing. The statistical analysis utilized a multiple linear regression technique from a program by Bottenberg and Ward. The self concepts of the experimental group were significantly (.05 level) improved (as measured by Self Concept Scale I but not II), anxiety was significantly (.05 level) reduced, and reading, deportment, and arithmetic were significantly (.05 level) improved; however, between group differences in attendance were not significant. (22 refs.) *V.G. Votano.*

University of Miami
Coral Gables, Florida 33146

2011 ROSS, SHEILA A. Effects of intentional training in social behavior on retarded children. *American Journal of Mental Deficiency*, 73(6):912-919, 1969.

EMR children participated in a 2-month training program to increase knowledge of social responses and to improve skill in logical reasoning. The experimental group learned social responses using doll play, live models, film slides, and puppets within a practical syllogism framework. The control group had identical media, but different content. An average group provided a basis for evaluating the experimental group's progress. The experimental group improved over the control group in logical thinking (p .05) and social responses (p .0005), the latter being higher than the average group (p .05). The improvement in social responses was maintained in retention tests. (12 refs.) - *Journal abstract.*

Palo Alto Medical Research Foundation
860 Bryant Street
Palo Alto, California 94301

2012 LACHENMEYER, CHARLES W. Systematic socialization: Observations on a programmed environment for the habilitation of antisocial retardates. *Psychological Record*, 19(2):247-257, 1969.

This critical examination of the principles and procedures involved in a token economy ward for 12 delinquent MRs (CA range 12 to 19 yrs; IQ range 50 to 70) is based on information gained by a social psychology student who spent 3 months as an attendant and 2 months as a research assistant on the ward. The major problems noted are the manner in which reinforcement contingencies were controlled by the residents; the fact that many desirable social behaviors were not adequately defined and hence, not reinforced; the lack of continuing in-service education; and the lack of control over the ward personnel. Other problems include lack of cooperation by the institution and economic problems associated with closed economic systems. The author suggests tightening contingencies for staff and patients, establishing exact specifications of desirable and undesirable behaviors, and increasing institutional involvement. (5 refs.) - *J.M. Gardner.*

University of North Carolina
Chapel Hill, North Carolina 27514

2013 MEANS, JOHN R., & MERRENS, MATTHEW R. Interpersonal training for an autistic child. *Perceptual and Motor Skills*, 28(3): 972-974, 1969.

An autistic boy (CA 3 1/2 yrs) gained social behavior and readiness for speech therapy after 2 1/2 months' participation in clinic socialization and home training programs. The boy had experienced rejection and physical abuse in infancy and had lived with a foster mother who had difficulty controlling his erratic behavior for the last 2 years. He had possible brain damage but was probably not MR. He avoided smiling and eye contact, did not react to speech, preferred isolation, spun himself and objects, did not speak, shrieked when inhaling, and reacted to strangers with tantrums. Behavior modification treatment included: the encouragment of present social

behaviors; the reinforcment of approach behaviors toward the therapist; the identification and reinforcment of social interaction behaviors; the use of a simple, controllable environment; and instruction of the foster mother so that she could continue reinforcement contingencies at home. Self-stimulating behaviors disappeared after 2 sessions, and there was a concomitant rise in approach socialization behavior. The foster mother reported that the same advances occurred at home on a delayed basis. Expirational sound production increased, and the boy began speech training which progressed well. (2 refs.) *M. Plessinger.*

University of Montana
Bozeman, Montana 59715

2014 SCHECHTER, MARSHALL D., SHURLEY, JAY T., TOUSSIENG, POVL W., & MAIER, WILLIAM J. Sensory isolation therapy of autistic children: A preliminary report. *Journal of Pediatrics,* 74(4):564-569, 1969.

Three autistic boys who had been nonresponsive to conventional therapy were placed in an experimental, sensory-deprived hospital room for periods of 40, 68, and 74 days, respectively. It was hypothesized that these children had a disturbance of central nervous system filtering mechanisms and used the autistic defense to control overwhelming outer and inner stimuli. All the boys were quite comfortable in an environment with minimal light, sound, inanimate objects, and personal contact and sought out human contact for the first time in their lives after this experience. Sensory deprivation was just one aspect of therapy. Each boy has been followed for at least a year and has continued to make progress in interpersonal relationships and intellectual development. The success of this type of project requires the close cooperation of parents, physicians, and all levels of hospital staff. (8 refs.) *E.L. Rowan.*

University of Oklahoma Medical Center
Oklahoma City, Oklahoma 73104

2015 CORTAZZO, ARNOLD, & SANSONE, ROBERT. Travel training. *Teaching Exceptional Children,* 1(3):67-82, 1969.

To reduce the costs of transporting SMR adults to and from activity programs, travel training programs were introduced in 8 activity centers in different parts of the United States. There were initial objections from parents and MRs because of travel hazards and from the center staff because of the danger and extra work involved in training. However, as each step in the program was successfully completed, all gained more confidence to try succeeding steps. Social maturity, emotional stability, and parent cooperation were more important predictors of success than IQ and Vineland Social Maturity Scale scores. Handling money, recognizing traffic signals and other signs used in traveling, and learning pedestrian and social rules were part of the program. Each trainee was taught his travel route, how to recognize his bus or train, how to use an identification card to ask for help if needed, and how to seek shelter from inclement weather while waiting for bus or train. As a final step the trainee made the trip by himself with the instructor following out of sight. Of the first 378 trainees (CA 17-40 yrs; IQ 12-55), 199 not only learned to travel alone but showed corresponding improvement in other skills. (10 refs.) - *E.F. MacGregor.*

Sunland Training Center
Miami, Florida 33100

TREATMENT AND TRAINING ASPECTS--OCCUPATIONAL

2016 OLSHANSKY, SIMON. An examination of some assumptions in the vocational rehabilitation of the mentally retarded. *Mental Retardation,* 7(1):51-53, 1969.

Assumptions which vocational rehabilitation has borrowed uncritically from the field of education and which tend to interfere with effective rehabilitation include the level of intelligence required for different kinds of jobs is known, a slow learner is also a poor learner, intelligence is a constant quality, MRs have a greater toleration for boredom than those of normal intelligence, and all MRs have the same type personality and are adequately described by the term MR. Since none of these assumptions can be supported by evidence, a totally new approach should be undertaken to allow the MR to prove himself as an individual rather than as a member of a special group. There must be a more experimental approach to vocational education, training, and job placement for the MR to determine more carefully their

interests and potential. Segregation of the MR should be minimized as much as possible. MR seeking employment should avoid whenever possible the fact of their special class placement. Since intelligence is an ever-changing capacity of responding to different situations at different times, assessment should emphasize situations which would encourage more effective responses. (No refs.) - *B. Parker.*

Community Workshops
Boston, Massachusetts

2017 TOBIAS, J. Social and ethnic factors related to utilization of rehabilitation services by the mentally retarded. *Rehabilitation Literature,* 30(8):226-230, 236, 1969.

The Association for the Help of Retarded Children, New York City Chapter, conducted a survey of the employment status of MR adults in New York City which was designed to determine the extent to which MRs utilize available vocational rehabilitation services, the psychological and social characteristics related to seeking such services, and the effectiveness of postschool training on subsequent employability. The Ss were 1,836 former public-school, special-education students who had been out of school for periods of 3 to 7 years and ranged in age from early to mid twenties. Minority group membership, intelligence, and family delinquency and serious family problems were prominent in a majority of those identified as retarded during their school years. Less than 1/4 of the Ss were known to the Division of Vocational Rehabilitation (DVR) and only 1/2 of this group received a rehabilitation service. Of the original group, 383 were located and willing to accept an interview in their homes. Data indicated that white MRs were over-represented in DVR, and that Puerto Ricans were under-represented, and that Negroes maintained a ratio close to their proportion of the total sample. Free resources for job counseling, training, and placement reached less than 40% of the selected sample. The greater the stability of the respondents' employment, the less likely was it that they were known to DVR. Also, those not known to DVR were more likely to be working in competitive employment and making a higher wage than those known to DVR. Data showed that MR women were more overtly retarded than the men known to DVR and would be less likely to enter the labor market and more likely to do less well than MR males. There is great need for an agency to help to bridge the gap between school and postschool adjustment, to make referrals to appropriate agencies, and to make checks on utilization of services and job aids by the MR. (No refs.) - *B. Parker.*

Association for the Help
of Retarded Children
New York, New York 10000

2018 NATIONAL ASSOCIATION FOR RETARDED CHILDREN. *Organizing a Sheltered Workshop.* New York, New York, 1968, 44 p.

A sheltered workshop program for the MR is considered a community resource in determining their employment potential through the utilization of a structured, controlled working environment which attempts to prepare individuals for sheltered or competitive employment. The higher level retardate generally participates in the transitional services which are accomplished on a relatively short-term basis. The lower level retardate needs extended services which may have to be repeated from time to time or extended indefinitely. Motivators, incentives, legal regulations and an active committee are necessary and essential considerations in the establishment of a sheltered workshop. In operating a workshop for retarded adults, a 6-phase program is recommended: screening admissions, evaluation, personal adjustment training, vocational or job training, selective placement, and follow-up. The length of each phase will be determined, in part, by intake policy, workshop goals, community resources, policy of the board of directors, background and preparation of the director, and budget. The local circumstances or situation will be a determining factor in the type of equipment or material considered to be essential. (No refs.) *S. Half.*

2019 ORZACK, LOUIS H., HALLIDAY, HARRY, & CASSELL, JOHN. *The Evolution of a Sheltered Workshop for the Retarded: The Idea and the Process of Implementation.* (Monograph Number 4 on The Pursuit of Change Series), Bridgeport, Connecticut, Parents and Friends of Mentally Retarded Children of Bridgeport, 1969, 79 p. (Price unknown)

Issues and problems in operating a sheltered workshop include the need to develop functions of various workshops, maintaining an evaluation unit, in-service training, work with community groups, stable funding, better planning of the plant, systematic screening, person adjustment training, effective public relations, and a flow of meaningful work. The workshop organization is set up with a

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work, lunch, and office area, and 65 clients (IQ >50) who work 6-7 hours a day are served by the shop. Seventy-five percent of the clients use public transportation, and the rest use private sources. The contract work done in the shop includes printing, assembling, packaging, inspecting, and sorting. The workers received $1.60 an hour with money being supplied from the sale of products, a local organization, and the federal government. Besides vocational rehabilitation services, clinical problems are treated. Basic principles of operation include: attempting competitive employment; limiting terminal sheltered workshop employment; using community based resources; utilizing the team approach; and avoiding complacency and stagnation. When the shop is linked with clinic, questions which must be answered include whether the employees must pay for services and if they should continue working for therapeutic reasons. (No refs.) *V.G. Votano.*

CONTENTS: Outcomes of Planning and Action: A Statement of Issues; The Current Workshop; History of Workshop Services; The Involvement of Vocational Rehabilitation Funds and Services; The Workshop and Adult Services; The Workshop and Clinical Services; The Workshop and Speech and Hearing Services; Satellite Workshops.

2020 NG, MARILYN N., & VAN CLEEF, LOIS E. Vocational rehabilitation potential in mildly and moderately retarded patients. *California Mental Health Research Digest,* 7(3):145-146, 1969.

In order to devise a test to assess success potential of mildly and moderately MR enrolled in a vocational rehabilitation workshop, 3 groups were administered 3 test batteries which included nail inspection and collating. Mean scores for each test item were determined on the basis of scores achieved by 39 Ss who attended the workshop and 12 Ss who were dropped from the program. The workshop performance of a third recently enrolled group of 13 Ss (including 3 physically handicapped Ss and one S with behavior problems) was observed to test the validity of the mean score indications. Results showed that ability in nail inspection or collating, and/or passing at least 8 test items correlates with workshop training success; however, Ss with behavior problems cannot be tested accurately. (No refs.) *V.R. Shaffer.*

Porterville State Hospital
Porterville, California 93257

2021 FELDMAN, RUTH C., & MORDOCK, JOHN B. A cognitive process approach to evaluating vocational potential in the retarded and emotionally disturbed: Part II. *Rehabilitation Counseling Bulletin,* 12(4):195-203, 1969.

Although previous research on cognition has identified specific variables in the cognitive process, the data are insufficient for rehabilitation training of the handicapped; therefore, the Devereux Cognitive Process Study (DCPS) was developed to assess concept formation, deduction, reasoning, decision-making, and other cognitive processes in variegated populations, including MR, from ages 6 years and older. The scale reflects sequential development from nonconceptual to abstract thinking in 11 categories. It uses work conditions and stress to rate the individual's work rate, problem-solving ability, mistakes, ability to profit from experience, self-evaluation ability, decision-making ability, judgment flexibility, and impulsiveness. Rehabilitation personnel can administer and use the DCPS in conjunction with an existing program. Future studies with atypical individuals should assess cognitive patterns which are relevant to vocational behaviors, identify data which predicts problem solving, rank in developmental sequence the ability to categorize, identify thought disorders, formulate training and placement based upon identified cognitive deficits, relate decision-making to the development of social responsibility, and investigate pathological cognitive patterns and social and vocational performance. (25 refs.) - *M. Plessinger.*

Department of Psychology
West Chester State College
West Chester, Pennsylvania 19380

2022 ZIMMERMAN, JOSEPH, STUCKEY, THOMAS E., GARLICK, BETSY J., & MILLER, MAURINE. Effects of token reinforcement on productivity in multiply handicapped clients in a sheltered workshop. *Rehabilitation Literature,* 30(2):34-41, 1969.

Token reinforcement procedures were applied to the problem of increased productivity in a community sheltered workshop for 16 multiply handicapped males and females (CA range 16-33). All Ss either had a poor prognosis for productive employment or had failed to make a satisfactory adjustment to a previous sheltered workshop. Ss were given points for increased individual rates of production on an assembly task requiring good hand-eye coordination and fine finger skills. Cumulated points could earn an industrial tour, entertainment, tangible

goods, the opportunity to work extra hours, and extra counseling time. A 2-week orientation period was followed by a 7-week baseline; then 2 weeks each of information feedback without points, information feedback with points, daily alternating between feedback with and without points, and a return to the baseline conditions. Productivity under information feedback with points was greater than feedback without points, which was higher than baseline data. When feedback with and without points was altered daily, feedback with points was more effective than without points. Return to baseline conditions resulted in higher productivity than that which occurred during the 7-week baseline period, however, the difference was not significant. (8 refs.) - *J.M. Gardner.*

Department of Psychiatry
Institute of Psychiatric Research
Indiana University School of Medicine
Indianapolis, Indiana 46207

2023 MORGAN, J.M. Productivity of the individual. *Rehabilitation in Australia,* 6(3):5-7, 1969.

Sheltered workshops should have a realistic work environment and emphasize the reduction of cost control and the improvement of individual output. Since supervisors are a major cost, "charge hands," who may be disabled workers who actually produce goods part of the day and supervise a small group the rest of the day, should be utilized to reduce the cost of control. To improve the productivity of the individual, work contracts must be continuous and of high volume; the type of work and the environment must be suitable to the abilities of the disabled workers; training must be emphasized and adapted to the individual; the method of performing the work must be adapted to the individual; and consideration given to automation and an incentive payment scheme. A "piece rating" system must include a fixed minimum wage. (No refs.) - *M. Plessinger.*

No address

2024 HANSEN, CARL E. The work crew approach to job placement for the severely retarded. *Journal of Rehabilitation,* 35(3): 26-27, 1969.

In a work training program for the TMR at Laurel Ruff Center (Sacramento, California), the boys worked under a supervisor as a cleanup crew for a recreational area. Referral by advertisement and word-of-mouth brought more than enough work for the crew. To make possible a widespread use of the "crew concept," volunteer supervisors are needed who will work for a minimum wage (retired men, college students). Legislative changes (such as for Civil Service requirements) should be made in order to allow the TMR to take advantage of job opportunities in county, state, and federal recreation areas. Physical fitness training and school curriculum should be designed to promote good work attitudes and abilities. (No refs.) - *E.F. MacGregor.*

University of Texas
Austin, Texas 78712

2025 GELLER, ROBERT E. Rehabilitation based on work experience training. *American Vocational Journal,* 44(5): 57-58, 1969.

The successful operation of a community rehabilitation workshop for all ranges of handicapping conditions requires careful evaluation, a structured training sequence, close attention, and emotional support for the workers. Participation by community agencies is also essential. (No refs.) *J.M. Gardner.*

Specialized Services, Inc.
Alton, Illinois 62002

2026 SANDERS, JOSEPHINE P. A pilot course in lifemanship for severely retarded youth. *Exceptional Children,* 35(9):747-748, 1969.

Training in personal, social, and economic skills for a group of 30 retarded young adults (CA 16-26 yrs; IQ 30-60) resulted in considerable success in preparing these severely retarded individuals for employment. The Ss lived in a hostel and had work experience in a workshop. Job tasks varied from gluing material together to using hand drills and larger machines. Individual assessment and instruction were essential to the program. (No refs.) - *J.M. Gardner.*

Seattle Public Schools
Seattle, Washington 98105

2027 LATZER, PAUL J. Hiring the mentally handicapped. *Office*, 69(5):43-50, 1969.

The shortage in office personnel, particularly for routine tasks, can be reduced by hiring the MR. They are generally more stable, remain on a job longer, work harder, and have lower accident rates. Disadvantages of hiring the retarded include a need for more emphasis on training and supervising and a lack of the MR's adaptability to new tasks. Supervisors should be informed of the person's status and instructed regarding the best approach in working with him. The rehabilitation counselor and the employer should maintain close contact. (No refs.) - *J.M. Gardner.*

Business Training School
Trenton, New Jersey 08600

2028 SKLAR, NATHAN E., & BELLIS, JOHN M., JR. The challenge: Adjustment of retarded adolescents in a workshop. *Journal of Rehabilitation*, 35(3):19-21, 1969.

When the workshop staff meets regularly with a part-time psychiatric consultant and a social worker for discussion of the problems of retarded adolescent trainees in the workshop, the exchange of differing viewpoints helps the staff to arrive at a better understanding of individual trainees and to supply the supportive action needed. By group and individual consultation and therapy, the psychiatrist and social worker may help change adverse attitudes of parents and adolescents so that the trainee becomes more cooperative and more able to fit into the workshop routine. If the staff feels that the consultants understand the workshop problems, they are more willing to make additional efforts to solve those problems. The consultants' support also reduces the staff's feelings of inadequacy if no solution can be found. (No refs.) - *E.F. MacGregor.*

Brandeis University Graduate School
for Advanced Studies in Social Welfare
Waltham, Massachusetts 02154

2029 PHELPS, WILLIAM R. Rehabilitation counselor's opinion regarding effectiveness of special project services for the mentally retarded. *Adolescence*, 4(14):229-244, 1969.

A statewide (West Virginia) demonstration project to rehabilitate 957 MR girls and train them in domestic care in an 8-week residential program was rated as extremely effective by 39 state rehabilitation counselors. Project goals were: providing a residential evaluation adjustment course; supplying social, personal, and job evaluation and training; developing proper attitudes, skills, and work habits; evaluating the program; promoting community understanding; and developing a curriculum which can be adapted by other rehabilitation centers and programs. The counselors were asked to evaluate the usefulness of various project reports concerning the girls from their district who had taken the course. Eighty-seven percent considered the Comprehensive Evaluation Report the most useful, and 85% felt that the girls who attended the project course were easier to work with than the other MR clients in their case load. Field counselors made enthusiastic comments about the project's success and suggested continuation and expansion. There was no significant correlation between the counselor's age, education, and length of employment and the number of MRs rehabilitated. (4 refs.) *M. Plessinger.*

West Virginia Rehabilitation Center
Institute, West Virginia 25112

2030 MARGOLIN, REUBEN J., GOLDIN, GEORGE J., & STOTSKY, BERNARD H. How the attitudes of physicians affect rehabilitation. *American Corrective Therapy Journal*, 23(3):70-73, 1969.

According to questionnaires returned (535 of 1,680 sent, 32% response) by randomly selected physicians (1,500), psychiatrists (150), and physiatrists (30), in the New England area, 1/2 of the physicians indicated that they were uninformed about state rehabilitation services and place MR at a low priority in fund allocation. Information sought was: physicians' awareness of community and state rehabilitation services; their attitudes toward the handicapped; their rehabilitation theories; relative concern for MR, physical handicapped, and mentally ill. Although physicians regarded the MR as the most handicapped, they felt that more effort, time, and money should be directed to the physically handicapped. As to the outcome of rehabilitation, the psychiatrists were pessimistic while the general practitioners were optimistic, even though they did not relate to rehabilitation structures. Increased medical involvement in rehabilitation is needed because of increased participation by the federal government in providing health care and rehabilitation programs. (9 refs.) - *M. Plessinger*

No address

2031 YOUNG, EARL B., ed. *Vocational Education for Handicapped Persons: Handbook for Program Implementation.* (Available from Special Needs Unit Handicapped, U.S. Office of Education, BAVLP, 7th and D Streets, S.W., Washington, D.C.), 1969, 126 p.

The Vocational Education Amendments of 1968 provide for vocational rehabilitation programs to enter into a State-Federal partnership with State Vocational Rehabilitation agencies which provide services directly to handicapped clients. To establish eligibility for services, the vocational rehabilitation counselor must determine if the client has a physical or mental disability, if he has a substantial employment handicap, and if there is a reasonable expectation that vocational rehabilitation services will make him employable. Vocational rehabilitation services include counseling, guidance, physical restoration, personal adjustment training, prevocational and vocational training, maintenance, placement, follow-up, transportation, family counseling, reader services for the blind, interpreter services for the deaf, and other materials and services necessary to make the clients employable. The State Vocational Rehabilitation agency can assist vocational education program development for the handicapped by expanding, constructing, renovating, staffing, and equipping school rehabilitation facilities and by removing architectural barriers from buildings where the handicapped can be trained or employed. Every person must be assessed so that programs can be designed to meet specific needs. The EMR can be served through instructional organization patterns and, when properly trained, may work in unskilled and semi-skilled areas. The TMR are generally employed in sheltered workshops, although a few make a moderately successful adjustment to community employment when adequate guidance is available. Program success depends on adequate planning prior to its opening, a close and compatible relationship between involved agencies, careful selection of teachers, staff orientation, frequent staff development conferences, and training concepts which emphasize job clusters rather than individual occupations. The success with which handicapped persons make the transition from school to employment depends largely on the extent to which the community accepts and understands their special adjustment problems. (37 refs.) - *S. Half.*

CONTENTS: Who Are the Handicapped?; Organizing for Cooperation--Interagency Involvement; Services Available from Vocational Rehabilitation; A Model for a State-Wide Cooperative Agreement; Programs and Services; Providing Services in Rural Areas; Community Involvement in Vocational Education Services for the Handicapped; Considerations in Planning Vocational Education for the Hearing Impaired; Considerations in Planning Vocational Education for the Visually Impaired; Considerations in Planning Vocational Education for the Physically Handicapped; Personnel; Some Suggested Sources of Teaching Materials; Some Suggested Sources of Assistance; Vocational Education Amendments of 1968 - Rules and Regulations - Selected Sections Related to Vocational Education for the Handicapped.

TREATMENT AND TRAINING ASPECTS--THERAPY

2032 WHITE, DELILAH. IQ changes in mongoloid children during post-maturation treatment. *American Journal of Mental Deficiency,* 73(5):809-813, 1969.

The effectiveness of post-maturational treatment in changing the IQ of a mongoloid child was examined. Post-maturation treatment consists of a vitamin-mineral hormonal preparation plus cellular extracts (siccacell). The treatment was given to 13 West German and 31 Chicago Ss. The German Ss were significantly older (mean CA 7 yrs 1 mo as compared to 3 yrs 4 mos) and had undergone treatment for a significantly longer period of time (8 yrs compared to 3 yrs) than the Chicago Ss. There were 431 non-treated controls. Whenever possible the Stanford-Binet (Form L) was used; other tests included the Cattell and the Merrill-Palmer. The untreated Ss showed an average IQ decline of .17 IQ points/month. An equal or greater decline was evidenced in 5 of the 13 German Ss and 12 of the 31 Chicago Ss. The sign test indicated that the changes in the treated Ss did not differ significantly from the untreated Ss, indicated that the post-maturation treatment was not effective in raising IQ. (14 refs.) - *J. M. Gardner.*

Dr. Julian Levinson Research Foundation
1850 West Harrison Street
Chicago, Illinois 60612

2033 AYERS, GEORGE E., & DUGUAY, ROBERT A. Critical variables in counseling the mentally retarded. *Rehabilitation Literature*, 30(2):42-44, 50, 1969.

Counseling the MR is one of the most important services provided in their rehabilitation. Environmental factors, parental influence, level of functioning, degree of impairment, emotional and social needs, self-concept, personality characteristics, motivation, and intellectual limitations are significant variables that counselors must be cognizant of if they are to assist the MR in developing to their maximum potential. These variables have a meaningful influence by enabling the MR to make a worthwhile contribution to society and a satisfactory adjustment in the home and community. (12 refs.) - *S. Half.*

Mankato State College
Mankato, Minnesota 56001

2034 BURKE, BEARLDEAN B., & McGRATH, VIOLA GUY. The changing concepts and function of occupational therapy for the mentally retarded. *Clearinghouse Journal* (Australia), 10:66-73, 1969.

The current aim of occupational therapy (OT) for the MR is to help each individual develop the highest possible level of self-utilization. Earlier, OT was concerned primarily with occupying the leisure time of MR patients. In New York and New Jersey, OT programing is now based on the functional level of the individual with consideration given to potential educability. Under medical direction, physical rehabilitation programing is provided to children and adults who require treatment with priority given to preschool children. Treatment includes educating and strengthening the muscles, improving coordination, preventing or correcting contractures and muscle atrophy, and training in perception and object identification. OT provides an opportunity for an individual to express himself verbally and nonverbally. (No refs.) - *L. Kyle.*

No address

2035 WEIGL, VALLY. Music for the retarded. *Music Journal*, 27(1):56-57, 1969.

MR children respond to music because of its rhythm, its ability to contact and reach them on non-verbal levels, and its provision of a feeling of accomplishment. Also, it appeals to their imaginations, helps to improve their vocal control, and aids in the development of self assurance and self-concept. Participation in a band aids social adjustment and offers emotional outlets for frustrations. (No refs.) - *V. G. Votano.*

No address

2036 SUOKAS, RAILI. Psychopathic disorder treated in a hospital for the mentally subnormal. *Nursing Mirror*, 128(22):22-23, 1969.

A 25-year-old borderline intelligence woman had a history of severe antisocial behavior including using drugs, aggressive and destructive acts. Her response to a systematic program of discipline resulted in her subsequent release from the hospital to productive living in the community. (No refs.) - *J. M. Gardner.*

No address

2037 COLWELL, CECIL N. "Amazing changes" in profoundly retarded. *Rehabilitation Record*, 10(1):10-12, 1969.

Although the profoundly retarded will always require special teaching, they can learn acceptable social behavior in a "cottage setting" where the ratio of residents to teachers is 6 or more to 1. The cottage method employs: even-tempered, organized personnel who can communicate clearly and distinctly *via* words and gestures; a program of positive reinforcement with food, toys, and praise as rewards; and step-by-step teaching with failure ignored and rewards given for intermediate improvement. As a result of this method, a 9-year-old boy at Pinecrest State School, who could not talk, dress, feed himself, or use the toilet, is able to eat in restaurants with passable table manners and keep himself clean and dry daily; his temper outbursts and self-biting are markedly reduced in frequency. (6 refs.) - *C. Rowan.*

Pinecrest State School
Pineville, Louisiana 71360

2038 REDINGTON, FRANCES. The education of Tom. *Staff*, 6(1):14-15, 1969.

A special therapy ward, where the technicians wore street clothes and where a reward system was utilized, was instrumental in rehabilitating a MR adolescent boy with behavior problems. Previously, he had disrupted classes, fought with other patients, and threatened

staff members. Presently, the boy is learning a skilled job in the hospital laundry as he prepares for community living. (No refs.) *A. Huffer.*

Porterville State Hospital
Porterville, California 93257

2039 PAUL, HOWARD A., & MARKOW, MICHAEL J. Neurological organization exercises on retarded children with strabismus. *Training School Bulletin,* 66(2):66-71, 1969.

Three groups of retarded children were utilized to test the hypothesis that "an exercise program of the neurological organization type will reduce strabismus in retarded children and will result in an increase in performance." This increase in performance will be measurable on an intelligence scale. Group 1 had 5 children with strabismus; group 2 had 5 children and group 3 had 10 children with no strabismus. Groups 1 and 2 were given the experimental treatment of an exercise program of neurological organization type. Group 3 received a non-specific exercise program. After 6 months, the average mental growth of Group 1 was 6.6 months. There was a measurable correction of strabismus in this group. Groups 2 and 3 had 3.3 and 3.2 months' growth. The effect on Group 1 was not permanent. Reduced number of Ss by the end of the study made hypothesis testing impossible. (6 refs.) *Journal abstract.*

Training School Unit
American Institute for Mental Studies
Vineland, New Jersey

2040 THOMAS, EVAN W. *Brain-Injured Children: With Special Reference to Doman-Delacato Methods of Treatment.* Springfield, Illinois, Charles C. Thomas, 1969, 178 p. $7.00.

This discussion of new perspectives in the management of brain-injured children includes a survey of the problem as presented in the medical literature and a presentation of Doman-Delacato methods of treatment. The diagnosis and treatment of children with non-progressive brain injury (including those with CP, MR, epilepsy, behavioral disorders, and dyslexia) should be based on functional and symptomatic approaches. The functional approach to the diagnosis of neurological disorganization used in Doman-Delacato methods involves comprehensive evaluations of basic motor and sensory functions in relation to age and the use of a functional developmental profile in diagnosis and the evaluation of progress or regression. Basic principles of Doman-Delacato treatment methods are: the brain is a hierarchy; "function" determines phylogenetic and ontogenetic structure; development of learning requires sensory input and motor activities; the neurological input of injured brains can often be improved by increasing the duration, frequency, and intensity of the motor activities and sensory input required for the development of neurological organization from birth onwards; and the organization or reorganization of an injured brain may be influenced if the earliest possible steps in the normal process of neurological organization are retraced. Treatment procedures of the Doman-Delacato methods are outlined, and treatment results are evaluated in statistical and case history terms. This book would be of interest to physicians, psychologists, educators, speech and occupational therapists, physical therapists, and parents of children with non-progressive brain injury. (224 refs.) - *J. K. Wyatt.*

CONTENTS: Brain Injury (Brain Damage) Defined; What Is Cerebral Palsy; The Pathology of Cerebral Palsy; Incidence and Prevalence of Cerebral Palsy; Mental Retardation; Epilepsy; Behavioral Disorders; the Problem of Dyslexia; Summary and Conclusions; Controversy Over Brain Injury as a Diagnosis; The Background and Interpretation of Neurological Organization; Evaluations of Neurological Functions; Principles and Methods of Doman-Delacato Therapeutic Programs; Conclusions and Summary; Evaluating the Results of Treatment of Brain-Injured Children.

2041 DENTAL ADVISORY COMMITTEE. CENTER FOR DEVELOPMENT AND LEARNING DISORDERS. *Dental Care for the Mentally Retarded: A Handbook for Ward Personnel.* (Staff document.) Birmingham, Alabama, University of Alabama Medical Center, No date, 44 p.

This handbook, designed for ward personnel, provides general information on dental health for the MR and suggests methods for organizing and conducting an effective oral hygiene and dental care program among institutionalized MRs. MR can be divided into 3 groups with respect to the ability to care for oral hygiene. The self-care group consists of patients who require encouragement and minimal supervision. A cooperative program among school teachers, dentists, and ward attendants using films, booklets and models can be highly successful with this group. The partial-care group consists of patients able to do part of the tooth-brushing but who require close training and supervision. Daily direct assistance is required. The total-care group

consists mainly of SMR. Individual assistance is necessary and many may never learn to clean their teeth. Consultation with dentists or hygienists may be helpful to determine the individual resident's requirement. (No refs.) *L. S. Ho.*

CONTENTS: General Information on Dental Health for the Retarded; Why Dental Care for the Retarded? The Attendant's Role in Providing Dental Care; Dental Health Information for the Attendant; Toothbrushing--How and When; Care of Toothbrushes and Equipment; How to Recognize Abnormal Mouth Conditions; Group Care; Cottage Programs--General; Program Outlines; Notes on Programs for the Three Groups.

2042 CHIONO, OSAMU, & MIYAMOTO, OSAMU. The dental care of the handicapped: A survey of the Southern California unit of A. S. D. C. *Journal of Dentistry for Children,* 36(3):217-218, 1969.

A questionnaire concerning the availability of dental services to handicapped and/or MR individuals, prepared by The Committee on the Care For The Handicapped of the Southern California unit of the Society of Dentistry for Children and mailed to 419 dentists, was completed and returned by 301 (71.8%) recipients. Although 133 dentists were treating MRs, only 62 had specialized training; however, 200 dentists expressed an interest in participating in a one-day course. As a result of the questionnaire, 138 dentists were placed on a roster of those willing to treat MRs, and a list of existing community dental facilities was compiled and made available to local receiving and diagnostic centers. Respondents indicated a desire to have more information on teamwork with physicians regarding diagnosing and treating the handicapped, management of hemophiliacs, orthodontic treatment for cleft palate, institutional care of the handicapped, techniques and aids in managing the handicapped, and psychological and neurological factors involved in rehabilitating the handicapped. (No refs.) - *V. R. Shaffer.*

No address

2043 GERTENRICH, ROGER L., FRY, ARTHUR E., & HART, RAY W. The effects of Mucoplex therapy and oral hygiene on Dilantin gingival hyperplasia. *American Journal of Mental Deficiency,* 73(6):896-902, 1969.

The object of this study was to determine whether or not Mucoplex (vitamin B complex therapy) and/or a meticulous oral hygiene regime could decrease or eliminate the presence of Dilantin gingival hyperplasia. One hundred and four Ss were selected, all of whom were receiving the drug Dilantin to control their convulsive disorders. These Ss were divided into 4 equal groups. The individual groups were tested in a double blind study with respect to the use of Mucoplex, placebos, special oral hygiene, and routine oral care. The study revealed a significantly salutary impact on both gingivae hyperplasia and gingivitis as a consequence of the oral hygiene program. There was no evidence that the Mucoplex therapy influenced the hyperplasia and only a strong suggestion that it might be helpful in reducing gingivitis. (5 refs.) *Journal abstract.*

Fairview Hospital and Training Center
Salem, Oregon

2044 DOSTAL, T. Behandlung von oligophrenen Kindern und Jugendlichen mit Propericiazin (Treatment of oligophrenic children and adolescents with Propericiazin). *Activitæ Nervosa Superior,* 10(3):319, 1968.

Propericiazin (Neuleptil Specia) administered to 21 boys (CA 10 to 24 yrs) in daily doses of 6-12 mg, effectively controlled states of extreme excitement and aggressiveness, but did not reduce the severity or frequency of epileptic attacks. Although fatigue was a preliminary side effect, the drug can be recommended for long-term therapeutic use. (7 refs.) - *S. L. Hamersley.*

Psychiatricka lecbna
Prague 8, Czechoslovakia

2045 BURK, H. WARREN, & MENOLASCINO, FRANK J. Haloperidol in emotionally disturbed mentally retarded individuals. *American Journal of Psychiatry,* 124(11):1589-1591, 1968.

A sample of 50 institutionalized MRs (CA range 5-21 yrs) with secondary emotional symptoms (hyperactivity, assaultiveness, impulsiveness, and self-injury) received either haloperidol or placebo in a double-blind study. Behavioral ratings before and after treatment showed that, among the placebo group, 25% were worse, 50% had no change, and the remainder were slightly or moderately improved. Of the patients who received the drug, none were

worse, 19% showed no change, and the majority improved with 19% showing a "marked" improvement. Treatment with haloperidol, then, may enable many disturbed MR children to participate effectively in educational and social programs and may even obviate the need for institutionalization of some who might not otherwise be tolerated at home. (5 refs.) *E. L. Rowan.*

Glenwood State Hospital-School
Glenwood, Iowa 51534

PROGRAMMATIC ASPECTS--PLANNING AND LEGISLATIVE

2046 WHITE, WESLEY D. *Planning and Programming for the Retarded: Yesterday, Today and Tomorrow.* New York, New York, National Association for Retarded Children, 1969, 8 p. (Price unknown).

Physical institution facilities affect staff attitudes and quality of MR care; therefore, small family-type living units are most desirable. Today 200,000 MR live in facilities which are over 50 years old and which were built in accordance with the nineteenth century philosophy that nothing could be done for MR. Because the MR were housed as cheaply as possible, early death was common. Today the MR are considered people with emotions who can benefit from individualized care and attention. Because the outdated facilities are hard to change, MR care is affected in proportion to the size of institution, the internal arrangements, the quality of personnel, and the administrative structure. (No refs.) - *M. Plessinger.*

2047 DOLL, EDGAR A. Programs for the adult retarded. *Mental Retardation/MR,* 6(1): 19-21, 1968.

Programs for the adult MR must be devised with their total life history taken into consideration. The period of early adulthood is a period of transition from school to life, and in this period, occupational training is primarily emphasized. In full adulthood, MRs can be accommodated in sheltered workshops or in programs with supervised employment. In placing the adult MR in an employment program, certain aspects must be considered: guardianship needs; companionship; and social adjustment. The life expectancy of MRs appears to be considerably less than that of normal persons, and how happy and useful their adult years become, remains the responsibility of the family and the community. (1 ref.) - *V.G. Votano.*

Bellingham Public Schools
Bellingham, Washington

2048 Mental retardation hospital improvement program: 1969. *Programs for the Handicapped,* Newsletter of the U.S. Health, Education, and Welfare Department, Secretary's Committee on Mental Retardation, 69(17):1-8, 1969.

The federally funded Hospital Improvement Program (HIP) grants state MR institutions up to $100,000 yearly for 10 years to improve, innovate, and institute high priority services such as SMR training, improving physical therapy, and psychiatric treatment for adolescents. In 5 years, $27 million has been granted to 110 of 175 eligible institutions; the funds are administered through the Rehabilitation Services Administration. Fund applications are judged by 2 non-government committees on program quality, goals, innovation quality, personnel, cost, integration in institution, priority, and execution plans. Information is obtainable from the institution about specific HIP programs. (2 refs.) *M. Plessinger.*

2049 MINNESOTA. PUBLIC WELFARE DEPARTMENT. *Minnesota's Mental Health-Mental Retardation Program in Perspective: A Comprehensive Summary.* St. Paul, Minnesota. 1969, 38 p. (Price Unknown).

Minnesota is coordinating community organizations, county welfare departments, and state hospitals in order to provide comprehensive care, community rehabilitation, and treatment for the MR, mentally ill, and alcoholics. Presidents Kennedy and Johnson focused attention on MR and called for better care, more personnel, health services, modified laws, and research. In response, Minnesota abandoned outdated ideas and programs and replaced them with new laws which recognize the MR on the state and federal level. The Minnesota Medical Services division directs MR curriculum planning, guardianship, and services in the Programs Office. The Community Programs works with

agencies locally, Education and Manpower Development recruits and trains, and Research coordinates activities to ensure relevancy. In 10 state hospitals, MR programs include vocational training, physical rehabilitation, and self-help skills. County welfare agencies (90) see that MR needs are met locally, arrange admission to state hospitals, and care on release. Since the 1957 Act to provide matching funds, 24 area programs serve 86 of the 87 counties in evaluation and education in local institutions, and there are day care centers in 51 counties. An effort is being made to involve state hospitals in the community. (No refs.) - *M. Plessinger.*

CONTENTS: Scope of the Problems of Mental Illness, Mental Retardation, and Inebriacy; History of the State Program; Legislative Achievement; Medical Service Division; State Hospital Service; County Programs, Community Programs; A Look Ahead: Progress and Prospects.

2050 NORTH CAROLINA. COUNCIL ON MENTAL RETARDATION. *Recommendations to the Governor of North Carolina and the 1969 General Assembly.* (1968 Annual Report), Raleigh, North Carolina, 1969.

The 1968 annual report of the Council of MR of North Carolina summarizes services for the MR which were initiated or expanded during the year and presents major recommendations to the Governor and General Assembly in the areas of prevention, community care, education, corrections and rehabilitation, public welfare, mental health, and law. To provide additional prevention services, the number of developmental evaluation and health supervisory clinics should be expanded, and existing clinics should be provided with increased support and additional personnel. Community care recommendations are for funds for 2 pilot community complexes, the continuation of grants-in-aid for day care, facilities for infants under 6 and older MRs, additional community coordinators and staff members, and funds for the construction of community facilities. Proposals in education are for adequate evaluation prior to special class placement; additional special class teachers, teacher training programs, and scholarship funds; an increase in grants-in-aid for TMR children with special needs; funds for educational materials, sheltered workshops, and transportation for children with special needs; expanded vocational education; and sub- and para-professional staff training. Corrections and rehabilitation services should be expanded to include evaluations, pre-release and after-care programs, counseling, guidance placement and case services. The public welfare area requires additional funds to improve psychological services, child welfare, and services for the aging and community. The general statute which deals with the exclusion of MRs from school systems should be amended so that adequate evaluation is insured and an adequate appeal mechanism is available. (No refs.) - *J.K. Wyatt.*

2051 *TRI-STATE COMPREHENSIVE PLANNING AND IMPLEMENTATION PROJECT FOR MENTAL RETARDATION.* Final Report. (Grant number [MR 3706-B67] 5398-03, Division of Mental Retardation, U.S. Office of Health, Education, and Welfare). Cincinnati, Ohio, 1969, 123 p.

The objectives of this project were to study intensively the possibility of implementing the recommendations of the Comprehensive Mental Retardation Projects in Ohio, Kentucky, and Indiana, and to establish procedures for the utilization of the regional tri-state facilities and services by MR persons irrespective of state boundaries. Activities included development of a parent-to-parent plan, completion of a dental survey, investigation into religious education planning and programing, formation of a law committee to develop laws and procedures which would facilitate interstate services for MRs, and execution of a survey regarding regional attitudes toward the MR. Recommendations include the necessity of having a logical, functional relationship between agencies, the need for cross-section representation on the various committees, and the implications of necessity for studying on-going community education, target groups, a manpower bank, job needs, protective services, and social activity center for the MR. (No refs.) *V.G. Votano.*

CONTENTS: State Reports; Tri-State Activities; Law Committee; Attitudinal Survey Recommendation for Future Study and Possible Implementation; Conclusions.

2052 RUYTER, TH. HART DE. Regionalisatie, gezien als sociaal-psychologische reactie en als organisatorisch probleem (Regionalization as a psychological and sociological reaction and as an organizational problem). *Tijdschrift voor Zwakzinnigheid en Zwakzinnigenzorg,* 5(3):88-94, 1968.

Although there are some drawbacks in regional programing for the care of the MR in Holland, they are outweighed by advantages,

such as smaller physical and psychological distances between the client and services. There is a lack of qualified doctors and nurses for homes and agencies. Once this need is filled, all handicapped children will be able to receive necessary aid for their development. (4 refs.) - *S.L. Hamersley.*

No address

2053 FINLEY, JAMES A., & CARPENTER, ROBERT D. Progress in special education. *Illinois Education,* 57(9):362-363, 1969.

Illinois has accepted the responsibility of developing plans for mandatory special education programs. On July 1, 1969 all school districts in the State established special educational opportunities for handicapped children. The Office of the Superintendent of Public Instruction (OSPI) has taken positive action at the state level enabling House Bill 1407, The Mandatory Law, to become a reality. Instrumental in the success of school districts in meeting this challenge were the efforts of county special education advisory committees to devise comprehensive and functional plans. The OSPI continues to explore all avenues of training for additional professional workers in order to meet the present need for qualified staff in the department of special education. A committee for preparation of professional personnel recommended the use of scholarship funds, development of training programs, review of certification standards, further research, and coordination of the recruitment process and of university programs with professional organizations and agencies. This development of continuing communication among special education facilities in Illinois institutions was considered a prime factor in meeting the academic needs of the handicapped. House Bill 1666 allows school districts to enter into joint building programs with other school districts. (No refs.) *S. Half.*

Office of the Superintendent
Department of Special Education
Springfield, Illinois

2054 HOLT, K.S. Care of the handicapped child. *Nursing Mirror,* 128 (15):19-21, 1969.

Most handicapped children have multiple defects and needs which continue for life because each stage of development brings its own problems. Examination and careful diagnosis, interpretation of the total effect of all defects in relation to the child and his family, and a continuing program plan based on this information are needed as a foundation for the provision of necessary services by all disciplines. Communication among these desciplines is of first importance in implementing program plans. (No refs.) - *E.F. MacGregor.*

Institute of Child Health
University of London
London, England

2055 Report on legislation: For the mentally retarded (in Kansas). *Community Health,* 3(8):15-16, 1969.

New legislation for the benefit of the MR in Kansas includes: direction to local school districts to establish special classes which will be partially reimbursed; authorization to develop rehabilitation facilities and halfway houses; and provision for establishing standards, licensing, and inspecting community mental health centers and facilities for the MR by the State Department of Social Welfare. (No refs.) - *A. Huffer.*

2056 Preparation of professional personnel in the education of the mentally retarded, fiscal year 1969 (P. L. 85-926 as amended). *Programs for the Handicapped,* Newsletter of the U.S. Health, Education, and Welfare Department, Secretary's Committee on Mental Retardation, 69(16):1-12, 1969.

Leaders and teachers in MR are being supplied through federal funding of training programs. Public Law 85-926 in 1958 funded 692 graduate fellowships in MR to 484 persons in academic years 1959-60 and 1963-64 and now 75% of all MR programs in universities are directed by these persons. In 1963 PL 88-164, section 301, expanded the program and in 1958-1968 23,000 fellowships were granted to train teachers and specialists to aid all handicaps. Education has been improved and expanded and in 1969, 6,366 fellowships were awarded to 184 universities while 53 state agencies cooperated for $9,482,084. Interested persons are urged to contact the administering agency for further information. (No refs.) *M. Plessinger.*

2057 SHIELDS, CHARLES D. New benefits for the disabled under social security. *Rehabilitation Literature*, 29(5):136-138, 1968.

Increased funds for rehabilitation of the disabled and more liberal standards for disability eligibility have not only added to the number of persons covered by social security but have also helped train more than 100,000 to be self-supporting. A study of 2,000 disabled persons showed that counseling and placement services are needed to help workers adjust to different types of work and that a more suitable training environment is needed. Continuation of payments for one year after the disabled person starts to work and immediate resumption of payments without a 6-month waiting period if disability recurs within 5 years have encouraged many workers previously held back by fear of loss of all income in the event of job failure or the return of disability. Adults disabled in childhood can, at age 18, receive benefits for life from the social security account of a deceased, disabled, or retired parent. Disabling conditions of the individuals who receive this type of benefit include: schizophrenia, epilepsy, cerebral palsy, polio, encephalitis, congenital syphilis, and other congenital malformations; 65% are MR. (No refs.) - *E.F. MacGregor.*

PROGRAMMATIC ASPECTS--COMMUNITY

2058 GOLDBERG, BENJAMIN. Comprehensive community programming. Paper presented at the 11th National Conference on Mental Retardation of the Canadian Association for Retarded Children, Edmonton, Alberta, September 26, 1968. 15 p. Mimeographed.

Community programing for the MR should be comprehensive, coordinated with other generic community services, and provide for continuity of services. Programing can be effective only if it encompasses the concept of physical, emotional, educational, vocational, and spiritual continuity. Principles applied in planning a community service program for the MR should include: developing the best facilities and general community services; identifying existing services and considering them in relation to one another; planning which considers social and economic trends; organizing prevention programs; determining the location, and need for services; upgrading present facilities and services; locating facilities in an area that is easily accessible to the MR; continuing in-service training of staff; and establishing procedures to evaluate services. Activity centers, residential care, adult community centers, group homes, and financial benefits must provide the MR adults with the opportunity to assume responsibility within their limitations. A diagnostic and evaluation clinic for the MR must be community, team, and family oriented, and the staff should be able to direct the patient and parents to all available community services. Principles in implementing a comprehensive program are identification of the gaps and services, acknowledgement by the community of the need for comprehensive services, establishment of a clinic for children, and integration of a variety of children's and adult services with cross-departmental cooperation with governmental departments. (9 refs.) - *S. Half.*

Children's Psychiatric Research Institute
London, Ontario, Canada

2059 SWYER, PAUL R. Continuity of care in the reproductive process. *Canadian Medical Association Journal*, 101(13):778-780, 1969.

The improvement of perinatal and infant care requires a continuity of treatment from the diagnosis of pregnancy, through its medical management and delivery, and during the postnatal period. A program in Sweden was successful in reducing pre- and neonatal mortality rates by establishing medical committees for counties and major urban centers. These committees drew up regional plans for providing comprehensive maternal and child health services. Service revolved around existing hospitals and satellite units staffed largely

by midwives. Infant and maternal mortality rates in Sweden are now among the lowest in the world. (5 refs.) - *J. M. Gardner.*

Department of Pediatrics
University of Toronto
Toronto, Canada

2060 MARTIN, C. V., & HORNER, G. C. Social institutions as therapeutic communities. *Psychotherapy and Psychosomatics*, 16(1-3):74-83, 1968.

Social institutions which may function as therapeutic communities include the military, schools, and churches. In the military, positive and negative reinforcements can be used within the system to achieve therapeutic goals. The goals of a therapeutic program established at an Air Force Base were to show the man that his problems stemmed from himself, uncover the reasons for impulsive behavior, and provide treatment designed to help each individual to overcome his particular personality problem. Antisocial personalities, inadequate persons, and individuals with emotionally unstable reactions demonstrated a good deal of growth under this program. A therapeutic educational program for elementary school children of approximately average intelligence, who were unable to learn because of an emotional problem, used small group teaching and provided reinforcement through class projects and activities. Therapy was provided for parents and the child. A comprehensive study of 40 children (mean IQ 87.7), who attended the school for an average of 3.4 years, showed that 2.1 years after leaving the program 100% were still in school, 55% attended regular classes, 45% were in special education classes, and none had failed any grade. In recent years guidance and counseling have become accepted functions of the church, and the interest of the church in mental health has greatly increased. If the whole church were expanded into a therapeutic community, individuals could gain an awareness of their feelings, thoughts, impulses, and behavior; try new skills in a safe environment; achieve a realistic appraisal of their social and interpersonal environment; and increase their self esteem. (15 refs.) *B. Parker.*

Brandon Psychiatric Group
15 East Gregory Boulevard
Kansas City, Missouri 64114

2061 MITTLER, PETER. Centre for study of learning processes. *Parents' Voice*, 19(2):23-25, 1969.

The Hester Adrian Research Centre (Manchester), a new university attached research center, plans to study the practical problems faced by the MR and his family, to develop a profile of an individual's strengths and weaknesses, to involve mothers in the treatment process, and to study learning processes. The research center staff has no formal teaching responsibilities. (No refs.) - *K. Lee.*

Hester Adrian Research Centre
University of Manchester
Manchester, England

2062 SCHMICKEL, BERT W. The Connecticut approach to serving the retarded. *Digest of the Mentally Retarded*, 5(2):75-78, 1968-69.

In Connecticut, the first step toward the goal of "lifetime planning for the retarded and his family" has been to divide the state into 12 regions so that a Regional Center is within easy reach of all retarded individuals or their families. Population in these regions varies from 60,000 to 400,000. Education, including preschool training, is mandatory for all EMR and TMR children. Where possible new and smaller training facilities should be built; where this is impractical, existing facilities can be reorganized and updated. The Residential Centers not only provide residential care (limit 250 persons) but also coordinate their services with those provided by other community resources so that the MR's needs can be met without duplication of services. (No refs.) - *E. F. MacGregor.*

No address

2063 Kentucky's dynamic new community mental health program. *Alabama Mental Health*, 20(4):4-6, 1969.

A description of a new community health program in Kentucky is presented to demonstrate the effectiveness of comprehensive care centers. Federal, state, and local funds have been utilized for this program. The state is divided into 20 multi-county regions with nonprofit corporations (regional boards of citizens) directing the regional comprehensive mental health and MR programs. Each comprehensive care center has an information-screening referral unit (ISRU) where professional workers are aided by "mental health associates" who have less training. The ISRU keeps

reliable and up-to-date information on services and facilities, directs people to the correct resources for their problems and treatment, and provides 24-hour emergency service. District teams are used to give technical assistance to citizen boards and center staffs and coordinate services between the community and state facilities. Kentucky has also established a diagnostic and evaluation center, a technical assistance program to aid the centers, and a statistical reporting system which allows centers to obtain recent information on population, services, facilities, and finances. (No refs.) - *B. Bradley.*

2064 Kentucky to build new MR facility. *Challenge*, 3(3):3, 1969.

Funds have been allocated by the state of Kentucky for construction of a multi-program treatment center which will accommodate approximately 450 MRs. The facility, to be completed in 1971, will be located in Somerset and is one phase of a program to improve residential, medical, and short-term care for the MR. In addition to providing care for MRs on a waiting list, the overall program will absorb the 690 patients currently at Frankfort State Hospital and School and provide for the future needs of MRs in Kentucky. (No refs.) *J. P. West.*

2065 MICHIGAN. MENTAL HEALTH DEPARTMENT. Muskegon mental retardation center. Lansing, Michigan, 1969, 11 p. Mimeographed.

A new MR center will provide day and outpatient services for a 6-county area and residential facilities for 254 MRs in terms of departmental programing. The residential services will include: a 14-bed nursery program; a 20-bed physical rehabilitation program for 6- to 14-year-olds; a 20-bed special program for multihandicapped children and a similar 20-bed program for adult multihandicapped; a 20-bed program for 6- to 14-year-old PMRs; a 40-bed growth and development program for the SMR; a 20-bed adult TMR program; a 40-bed special education program for EMR and TMR children; a 40-bed prevocational, socialization, and vocational training program; and 20 beds for isolation and guest use. Outpatient services will include: diagnosis and evaluation, perceptual defects screening, family counseling and life planning, educational remediation and diagnosis, physical therapy, dental services, vocational rehabilitation counseling, vocational and community placement, day care, home training, and consulting services. (No refs.) - *M. Plessinger.*

2066 CANADIAN ASSOCIATION FOR RETARDED CHILDREN. Report of the seminar on community residences and foster home care. Toronto, Ontario, Canada, 1968, 23 p. Mimeographed.

There is an increasing acceptance of the concept that the MR should and can successfully reside in their own community; this is manifested by the interest in small group residences and by the support given at the voluntary and governmental level. The Seminar on Community Residences and Foster Home Care developed guidelines for planning, development, and financing of community residences and foster home care. Whenever possible the MR child should remain at home; however, if this is not feasible nor desirable an alternative would be a foster home placement or a group care setting. An urban placement is preferred over a rural residence because supportive auxiliary services are more readily available. Residences should be close enough to the MRs' homes to permit frequent visits by their families. Social workers providing counseling and casework services to the MR and their parents could lend support to the residence and family. A community residence is a place where MR persons would be free to circulate in the community; it is operated by paid staff either in a rented or purchased agency facility; and it conducts a relatively formal program. A foster home is a placement in which foster parents assume the responsibility for the care and supervision of MR children and provide them with the same care they would give their own offspring. Better use could be made of boarding homes and foster homes enabling MR children to attend day schools in lieu of constructing a residence for this purpose. There is grave concern focused on the need and types of community residences for the MR, but consensus is that the residence should be community based and take advantage of community services. In small communities where facilities are limited, workshops and occupational centers should be developed and the vocational role of the MR further explored. (No refs.) - *S. Half.*

2067 DICK, RUTH. Foster home boarding program. *Deficience Mentale/Mental Retardation*, 19(1):6-7, 1969.

Foster homes allow MR children to attend an area school and return home on weekends. In Alberta, Canada, a Boarding Committee finds foster homes through advertisements, churches, and personal contacts for children who attend the Burgess School. The MR's parents contact the foster home by themselves and make financial arrangements, usually $60/month. The MR is cared for and attends school during the

week and sees his family at home on weekends. In the future, it is hoped that several MRs can board with one family so that peer social interaction is achieved. (No refs.) - *M. Plessinger.*

Camrose and District Association
For Retarded Children
Alberta, Canada

2068 Boarding out. *British Medical Journal,* 1(5646):731, 1969.

The recognition of disadvantages of care in large institutions has led to legislation that placed the MR and mentally ill in living quarters with smaller numbers of patients. "Boarding out" with private landladies is recommended only if the landlady is carefully chosen and the social casework is adequate. Patients who are employed pay rent in proportion to salary and the government pays the balance. Because of the difficulty of finding suitable landladies, caution should be exercised in boarding out the MR. (7 refs.) *E. F. MacGregor.*

2069 ALEXANDER, JIM. Teenagers find a challenge: Youth group aids retardates. *Motive,* 15(2):10-13, 1969.

Youth-Ohio Association for Retarded Children (about 3,500 members) was formed to change public opinion about the MR. Local chapters determine their own goals; however, the 3 basic goals of the organization are to develop public awareness of MR, become a friend to the MR individual, and work in conjunction with the adult chapters. Many of the teenagers feel that the problems stemming from public opinion about the MR are due to public apathy. (No refs.) - *V. G. Votano.*

No address

2070 BICKNELL, JOAN. Adoption into family with mentally handicapped child. *British Medical Journal,* 1(5646):776, 1969. (Letter)

The policy of adoption agencies which refuse to consider as adoptive parents a couple with an MR child should be updated. Such children often add much to the family unit and to the stability of a marriage and this should not be disregarded by adoption societies. (No refs.) - *E. F. MacGregor.*

Queen Mary's Hospital for Children
Carshalton, Surrey, England

2071 CRAWFORD, D. Retarded and the community. *Australian Children Limited,* 3(7):199-222, 1969.

In recent years much progress has been made in the attitude of the Australian community toward the MR. Day centers, hostels, sheltered workshops, and community service agencies have helped to expose the community to MR people and make them more aware of the needs of this special group. Additional funding is needed to expand multi-purpose institutions which will provide for difficult cases who are unable to function in the community. Movement of the MR from institutions to the community was begun by parents who saw the need for better services for their children. Placement of EMR and TMR people in employment has given them a new position as self-supporting adults--a right previously denied. Since multi-purpose institutions can function within the community, such facilities should be planned and implemented. Still needed is research into services for the PMR, employment, foster homes, hostels, and their staffing. MRs tend to behave as normals when they are given appropriate educational facilities and opportunities and are treated as nearly normal as possible. (No refs.) *B. Parker.*

Minda Home
Brighton, South Australia
Australia

2072 KOCH, RICHARD, BAERWALD, ANN, McDONALD, JOAN, FISHLER, KAROL, & BOYLE, DAVID. The child development traveling clinic project in southern California: A report of the first seven years (1959-1965). *Pediatrics,* 42(3):505-513, 1968.

The Traveling Child Development Clinic Project (Southern California) is a demonstration project which uses local resources and a traveling clinic to provide diagnostic, treatment, and counseling services for preschool MRs. Since 1959, 15 local clinics have been established, and 1,591 children have been evaluated. The Traveling Clinic consists of a pediatrician, social worker, public health nurse, clinical psychologist, and hearing and speech consultant. The public health nurse serves as case

coordinator and visits the MR family before and after the clinic. Newly established clinics have adapted to local resources and have been located in the county health department in 6 counties, in a hospital in 2 counties, in a handicapped school in 1 county, and in a clinic building in 1 county. Community participation in the establishment of the clinics and dependence on local facilities has developed community interest and involvement. The majority of the MRs served by the clinics have been under 3 years of age and from middle class families. Thirty-nine percent had congenital conditions, 30% were classified as MR due to cultural and psychological causes, and 4% originally thought to be MR were diagnosed as normal. Clinics' recommendations included return clinic evaluation, medical care, public health nursing, schooling, counseling, and institutional care. (8 refs.) - *M. Plessinger.*

4614 Sunset Boulevard
Los Angeles, California 90027

2073 SONIS, MEYER. Implications for the child guidance clinic of current trends in mental health planning. *American Journal of Orthopsychiatry*, 38(3):515-526, 1968.

A mismatch of service to need is a major problem with various community services for children and could be remedied by adopting principles which include helping the child mature physically and mentally, allowing the parents to help, and focusing caretaking services on the child. The services of the child guidance center should include outpatient and acute services, a day-care center, and inpatient and rehabilitation services. The clinic should be a center for education and training, a laboratory for research, and a base of knowledge from which the staff's knowledge, skill, and manpower is available to other community agencies. Experience has taught that: community agencies have not been able to develop a comprehensive approach to children; community programs are fragmented, duplicated, and unable to keep pace with rising costs; and philanthropic and academic institutions cannot provide all the services needed but can play a role in the delivery of such services. (10 refs.) - *V. G. Votano.*

Department of Psychiatry
University of Pittsburgh
School of Medicine
Pittsburgh, Pennsylvania

2074 HOWARD, RICHARD D., & ANGELAR, DONNA. Junior achievement and special education. *Special Education in Canada*, 43(4):17-19, 1969.

A Junior Achievement (JA) business was formed and modified for a small special education class (learning disabilities) in a normal high school and favorable results were achieved. Businessmen fund JA nationwide to acquaint normal high school students with business as they: form a company; produce and sell a product or service; and pay wages, utilities, taxes, and stock dividends. JA rules were modified to let this special company work during school and evenings. The company found service projects best because of limited facilities and few students with sales ability. The students had IQs of 67 to 118, kept accounts and records, and met the public through JA functions. Since JA is a respected organization, the community businesses were ready to advise, allow field trips, and hire former JA members. Grooming and manners improved and community reactions were very favorable. JA companies could be established almost anywhere and cooperate with other vocational programs. (No refs.) - *M. Plessinger.*

Pikeville College
Pikeville, Kentucky 41501

2075 CANADIAN ASSOCIATION FOR RETARDED CHILDREN. *Religion for the Retarded: A Manual for Inter-Faith Committees of Associations for the Mentally Retarded.* Toronto, Ontario, Canada, (No date), 18 p. Mimeographed.

The function of any inter-faith committee on religion for the MR is to advise religious leaders and congregations in ministering to the needs of MRs and their families. The spiritual leaders and congregations need guidance in understanding the spiritual potential of the MR and need resources and materials with which to work. They should be cognizant of new developments in the field of MR and should establish good working relations with community agencies and organizations that provide services to the MR and their families. If parents are willing for their MR child to be accepted by a congregation, an interfaith committee could assume the responsibility for consulting an available clergyman. The MR child should have every available opportunity to further understand and experience the love of God. MR persons can learn to respond to God in worship and are able to develop religious attitudes and values that play a significant role in their daily contacts with

others. The Manual suggests reading materials, films, and filmstrips, and curriculum resources to use in the religious development of MR children. (36-item bibliog.; 6 films; 2 filmstrips) - *S. Half.*

2076 STISKIN, HERSHEL M. Curriculum planning for the special religious class. *Synagogue School,* 27:3-5, 1969.

Religious education for the MR Jewish child at Maimonides Institute is based on the premise that all children have the ability to learn something of their Jewish heritage and can identify themselves with the Jewish people. The program is designed to furnish Jewish MRs with the attitudes and skills necessary for their adjustment to society and with a knowledge and appreciation of Jewish values. The social, emotional, and vocational adjustment of MRs is easier when they are properly adjusted to their religious community. The religious curriculum for MR children should include an understanding of many of the social and religious ideals of traditional Judaism, an appreciation of the Jewish heritage, identification with the Jewish community, participation in services, and utilization of faith in God to meet personal problems. The curriculum must be fluid and changing to meet the needs of the individual and the class. A dynamic religious education program can make the religious community an active partner in the rehabilitation of the MR. (4 refs.) - *B. Parker.*

Maimonides Institute
Queens, New York 11219

2077 SHEILA, M. Why teach religion to the retarded? *Parent-Educator,* January: 7A-8A, 1969.

Retarded children should receive religious instruction on the bases that: God does not recognize them as "retarded," but as children; Christianity is not selective or limited to intellectuals; MRs are capable of showing emotions, and therefore, need spiritual guidance in decision making; and MRs should receive instruction to their fullest potential as they have shown their capability to learn religious truths. (No refs.) - *V. R. Shaffer.*

St. Coletta School for Exceptional Children
Jefferson, Wisconsin 53549

2078 PERSKE, ROBERT. *The Pastoral Care and Counseling of Families of the Mentally Retarded.* 1969, 12 p. (Available from National Association for Retarded Children, 420 Lexington Avenue, New York, New York 10017.)

Pastors must become involved with families of MR to help the family and to learn about MR and family reactions. Each situation and child must be considered individually. Families experience a progression from denying the child's being MR, feeling guilty for the child's condition, blaming others, and wishing to be rid of the MR to learning to live with the situation and accepting the MR as a human. Persons are often repulsed by MRs because of human shortcomings including: not being able to accept failure or those different from themselves; a need to have completely 2-way relations and not to feel helpless as our life is changed; and seeing the MR as a result of evil. A pastor can aid the family to have realistic goals and limits for the MR. He must realize how important the usually normal childhood achievements can be to the MR family. In addition to being a comforting presence, he can help families determine if they are helping their MR too much, enough, or too little. Family problems which pastors may encounter include: desiring to have pastors take over the problem; placing the blame on the spouse and desiring a divorce; allowing the MR child to become a scapegoat for every problem; developing death wishes; and changing religious attitudes and beliefs. (No refs.) - *M. Plessinger.*

PROGRAMMATIC ASPECTS--RESIDENTIAL

2079 NEWROTH, STEPHEN H. *Regional Residential Needs for the Mentally Retarded: A Survey of Toronto and Surrounding Area.* Toronto, Canada, National Institute on Mental Retardation of the Canadian Association for the Mentally Retarded, July 1969, 73 p.

In a survey of existing and planned public and private residential facilities for MRs in Metropolitan Toronto and Ontario Association for the Mentally Retarded regions 6 and 8 (Canada), 822 families of MRs were interviewed on either a face-to-face or mailed basis. Ninety-two percent of those surveyed expressed a preference for smaller community-based residential facilities over traditional forms of care. Smaller facilities were preferred because they kept the MR near home and provided a family-sized environment. During the period 1969-1974, the survey area will require 25 additional community residences (10-bed units) to meet the needs of the 48% of the survey respondents who indicated when they would require residential care services. If all respondents with MRs living at home had indicated when they would need residential services, the estimated number of residences needed would be much higher. Since operational costs for large institutions and small community residences did not differ appreciably, the findings of this survey oppose the assumption that large institutions provide the cheapest type of residential care. Estimates for the province of Ontario, based on this data, indicate that 75 community residences will be needed to meet minimum needs during the next 5 years. (28-item bibliog.) *J.K. Wyatt.*

CONTENTS: Resume of Emphasis: Past and Present; Survey Methodology; Results and Implications; Rationale for Smaller Facilities; Utilization of Smaller Facilities; Facilities in Survey Area; Guidelines for Future Planning.

2080 SHARPLEY, ROBERT P. *1967 and 1968 WICHE Profiles of Population Statistics for Residents of Washington State Schools for the Mentally Retarded: A Review.* Olympia, Washington, Intitutions Department, *Research Report,* Volume 2, Number 6, 1969, 90 p.

A summary of the data for the state of Washington which was collected by the Western Interstate Commission for Higher Education (WICHE) is presented. Serious questions concerning the reliability and meaningfulness of the data are illustrated by significant discrepancies between WICHE data and data computed by hand scoring for such items as destroying clothing, breaking windows, and placement of residents. One possibility of eliminating errors of this type would be to create intermediate data collection and analysis centers. (No refs.) - *J.M. Gardner.*

2081 ILLINOIS. MENTAL HEALTH DEPARTMENT. Admissions to state residential facilities for the mentally retarded. *Mental Retardation in Illinois,* 3(1):6-7, 1969.

The processing of applications (or court orders for admission) to facilities for the MR are handled by the Division of Mental Retardation Services which may refer the application to the appropriate zone staff for further study and recommendations. Placement for an applicant on emergency status depends on whether he is neglected, needs more care, or is causing undue hardship on the family. Exceptional admissions result from court orders or from application for those MRs in jail, detention homes, or under jurisdiction of the Illinois Youth Commission. (No refs.) - *V.G. Votano.*

2082 STEDMAN, DONALD J. A recipe for improving residential care: Add a dash of capitalism. *Mind Over Matter*, 14(2):14-16, 1969.

Institutions for the retarded represent closed systems--incapable of self-renewal from within, and not responding to the needs from without. A new orientation is needed; direct funding of families of retarded children is needed so that they may choose residential centers themselves. This funding would be determined by the Internal Revenue System and be based on income, number of dependents, and educational level of the parents. Moreover, rather than cash, the funds would be negotiable certificates designed specifically for its special purpose. Such a change would create competition among institutions and lead to improved facilities and improved staff. Other advantages would be in creating an up-to-date national register of retardates, reducing welfare problems in this area, fostering the decentralization of large institutions, and attracting wide attention to MR. (No refs.) - *J.M. Gardner.*

George Peabody College
Nashville, Tennessee 37203

2083 MULLER, E. The re-education of young people in institutions and its future development. *International Child Welfare Review*, (May):3-14, 1969.

The goal of the re-education of young people in institutions and its future development is to have a social youth recognize norms acceptable in society. Asocial children with normal intelligence who have experienced environmental deprivation and damage should be placed in the open, outward-looking children's institutions that give preference to group education with outside training potential. The more closed, inward-looking home should be utilized for normal to less intelligent children who are unable to handle adequately stress situations. Psychotherapeutical treatment can be implemented with some degree of success. There is a need for the development of homes for MR children coupled with special schooling and more internal industrial training possibilities. There is also a need for a home with security protection for the very difficult child lacking inner self-control. Children with specific behavior disturbances, certain neurotics and brain-damaged children should be placed in a therapeutive type of home. There is also a need for the planned youth psychiatric clinic for children with congenital defects, psychopaths, and the mentally disturbed. Home placement provides a medium by which handicapped children can enhance their self-confidence, work outside the institution, and be exposed to external training and schooling facilities. Once these special homes become available, we will no longer need to admit children to adult prisons. Disturbed children need freer, more individual care and education. By providing them with living conditions as close as possible to normal, positive potentialities can more easily be developed among them and they can once again assume their role in society. (6 refs.) - *S. Half.*

No address

2084 GOLDBERG, I. IGNACY, & YOUNIE, WILLIAM J. Education as a function of the residential setting. *Mental Retardation/MR*, 71 (1):12-14, 1969.

An institutional environment is comprised of: staff (professional and nonprofessional) and their functions, characteristics, and attitudes and residents and their needs; the organizational regulations; the collective attitude of non-campus individuals (taxpayers, legislators, and parents); and the physical plant. In defining the term "institution," 2 conclusions are possible: either the institution is a conceptual reality where individuals interact to achieve their own goals, or it is a place where the organizational needs are primary to the individual's needs. In a residential setting, educational objectives should consider expressed needs of the individual and societal needs (attitudes, knowledge, and skills demanded by society). To help a child fulfill his personal needs and overcome his resistance to learning and also preserve an organizational structure conducive to learning, institutions should provide a therapeutic environment which integrates educational and treatment services, and they should move physically and philosophically closer to the local community. (17 refs.) *A. Huffer.*

Department of Special Education
Teachers College
Columbia University
New York, New York

2085 ORZACK, LOUIS H., SALLOWAY, JEFFREY, CASSELL, JOHN, CHARLAND, BENOIT, & HALLIDAY, HARRY. *Residential Programming and Residential Centers for the Mentally Retarded: The Experience in Bridgeport.* (Monograph Number 3 on The Pursuit of Change Series) Bridgeport, Connecticut, Parents and Friends of Mentally Retarded Children of Bridgeport, 1969, 49 p. (Price unknown).

Important topics to be considered before establishing a residential center are selecting the facility, funding, residents, and staff. The purposes of residential centers in Bridgeport include providing a transitional return to the community, prevention of delay in placement to an institution, short-term crisis care, and a future home for retardates. These centers have bedrooms which are shared by 1 to 4 residents, laundry equipment, storage areas, attractive furnishings, and houseparents who are responsible for food, supervision and scheduling. Residential units should have heterogenous groups, provide special care for the MR, and receive aid from social services. The staff in a unit should consist of a houseparent, housekeeper-cook, and a relief person. Houseparents' duties include proper dressing of residents, maintaining records, knowing the location of the residents, resolving interpersonel problems between residents, supervising chores, and preparing some meals. The residential program centers around the prevention of institutionalization of the residents, temporary housing for out of state MRs, and aid for those who could benefit from a halfway house. (No refs.)
V.G. Votano.

CONTENTS: Guidelines for Planning and Action: A Statement of General Issues and Problems; Needs Served by the Centers; Description of the Centers; The Centers in Operation; Early Planning for Residences; Planning and Implementation at Faust Hall and Maridot Manor; Income; Conclusion.

2086 GUNZBURG, H.C. *Journal of Mental Subnormality,* 15, Part I (28):1-2, 1969. (Editorial)

Institutional paternalism and isolation are very real problems in hospitals for the MR where inadequate staff with inadequate facilities try to solve impossible problems. The trend toward vegetation in both patients and staff can be reversed only with major effort. An exchange of staffs to work in hospitals with different ideas and approaches, and attempts to convert research findings in areas such as motivation, group structure, and learning into practical programs may be a step in the right direction. (1 ref.)
E.L. Rowan.

2087 SHAPIRO, A. *Journal of Mental Subnormality,* 15, Part I (28):59-60, 1969. (Letter)

Large institutions for the MR suffer from a lack of facilities, finances, and staff, and an excess of criticism. Objectives are necessarily limited by the potential of the patients. Basic habit training and monotonous routine may represent the pattern of living most suitable for the severely MR. (No refs.) - *E.L. Rowan.*

Harperbury Hospital
Harper Lane, Near St. Albans
Hertfordshire, England

2088 Successful program provides greater hope for many young residents at Lakeland. *Lakeland Village News* (Newsletter of Lakeland Village, Medical Lake, Washington), 31(2):6, 1969.

An experimental program chose 12 problem SMR boys (CA 8 to 14 yrs), who were not toilet trained, could not feed themselves, were destructive, had poor coordination, and did not respond to their names, for continuous physical, mental, and self-help training. All personnel worked toward a common goal, and recreation, which had been impossible previously, now included walks, swimming, music, and bus rides. After 6 months, the SMR fed and dressed themselves, responded to their names, obeyed simple orders, and had progressed in toilet training, physical coordination, social awareness, and elimination of destructive behavior. (No refs.)
M. Plessinger.

2089 FELL, J.H. Teaching mentally subnormal children. *Nursing Mirror,* 128(4):27-29, 1969.

At a hospital for MRs, a large room was decorated and equipped to serve as a therapy area so that children and adults could be taught to walk. Much of the equipment was built from odds and ends around the hospital, and all of the decorating was done by the staff. During the training sessions, the children receive individual attention and have an opportunity for free play. It is

during these play periods that the first signs of progress are noted. (No refs.) *V.G. Votano.*

Calderstones Hospital
Whalley, England

2090 CORTAZZI, DIANA. The bottom of the barrel. *Journal of Mental Subnormality,* 15 Part I (28):3-10, 1969.

Twelve SMR women (CA 13 to 36 yrs; MA 2 to 5 yrs; IQ < 25) were given training (1 hr/day) in socialization and development of a desire to learn. A film was made over 4 years of the progress of the program. The patients had been in locked wards because of destructive behavior. Training goals were to develop the patients' communication ability, increase their interest and attention span, develop their ability to control emotions, teach them nursery school skills, and graduate them to occupational therapy programs. Early activities included playing music and moving in a circle, painting, playing and passing a musical instrument in a circle; these were met with hostility, erratic and uncontrolled behavior for several months. After 9 months, 4 patients were removed from the group because of their uncontrolled behavior or boredom. As a group feeling was established, activities expanded to using a felt board, pegboard, and magnetic board; putting bricks in a box; using a knife and fork; and performing various physical activities. At the end of 2 years, 4 women graduated to occupational therapy and now enjoy extensive experiences in the normal hospital community. (No refs.) - *M. Plessinger.*

Royal Earlswood Hospital
Redhill, Surrey
England

2091 DILLEY, GEORGE M. Retarded women teach self-help skills. *Hospital and Community Psychiatry,* 20(5):44-45, 1969.

Mildly MR women (IQ range 22 to 61; CA range 22 to 53) taught SMR women (CA range 14 to 43 yrs) self-help skills in a controlled living environment. Less handicapped big sisters helped more severely MR little sisters. Ten little sisters, (Group A) moved to the residence of their big sisters and each was assigned to one woman. Ten big sisters moved to live with the remaining little sisters (Group B). Big sisters were chosen because of their ability to communicate and follow directions and their command of self-help skills. A big sister was paid $0.50/week and made to feel that she was helping. The little sisters were rated in self-help skills of toilet training, dressing, and getting a meal in the cafeteria at the start of the program and 4 months later. The number of little sisters in Group A who could use the toilet properly rose from 3 to 6; 7 learned to dress themselves; and 9 could feed themselves. In Group A, 9 little sisters have graduated into a higher-level residence. Although the little sisters in Group B accomplished less because they had fewer models, there were significant accomplishments. The big sisters' behavior improved as they obtained satisfaction from helping a less fortunate person. (No refs.) - *M. Plessinger.*

Idaho State School and Hospital
Nampa, Idaho 83651

2092 HAMILTON, JOHN, ALLEN, PATRICIA, STEPHENS, LYNN, & DAVALL, EMILIE. Training mentally retarded females to use sanitary napkins. *Mental Retardation/MR,* 7(1):40-43, 1969.

Thirty-five menstruating girls (mean IQ 26; mean CA 21 1/2 yrs), 33 of whom had no experience with sanitary napkins, were trained to use sanitary napkins. The training program was broken down into 5 discrete steps. Social praise and encouragement followed each appropriate response, and a cookie reward was given after specific stages of training were completed. This procedure with certain exceptions was repeated with 41 menstruating girls (mean IQ 45, mean CA 16 yrs). For both cottage populations the easiest step was that of keeping on the napkin and the most difficult was informing the staff of the need for a change of napkin. Rate of progress and final level of achievement depended on the level of functioning or achievement of each resident at the beginning of the program. More capable residents comprehended more easily and progressed more rapidly, and residents who had reached a moderate degree of success in self-help skills were capable of the same degree of self-sufficiency in the use of the sanitary napkins. (2 refs.) *B. Parker*

Gracewood State School
and Hospital
Gracewood, Georgia 30812

2093 MARESH, AL. "You feel like a parent." *Rehabilitation Record,* 10(4):33-35, 1969.

Boys from the Minnesota State Training School for Boys who seem most likely to profit from education and rehabilitation training take part in a "big brother" project to help MR children. Several times a week they provide arts, crafts, and play activities and help tutor the MRs. The Training School program includes various classroom subjects related to the differences and similarities between MRs and normal individuals; academic work is supplemented by their firsthand experiences with the handicapped. (No refs.) *E.F. MacGregor.*

Minnesota State Prison
Stillwater, Minnesota

2094 PINFIELD, IVAN N. Domestic training unit for mentally subnormal patients. *Nursing Mirror,* 128(24):21-23, 1969.

A war-time hut was converted into 2 apartments to provide EMR adolescent girls with opportunities for domestic work, companionship, living in individual bedrooms and instruction in personal cleanliness and elementary education. Each apartment has a sitting room, kitchen, dining room, and 2 bedrooms, and an attendent is on duty only during the day. Training includes baby care, serving meals, cleaning, cooking, shopping, mending, washing clothes, ironing, and reading, writing, and money handling. Of 56 girls admitted in a 5-year period, 20 are working in the community; 25 work well in the wards, but need more social training, 5 had special problems, and 6 are with parents. Of those having IQs 30-49, 2 succeeded, 7 failed; of those with IQs 50-59, 5 succeeded and 11 failed; of those with IQs 60-69, 10 succeeded and 11 failed; and of those with IQs 70-80, 12 succeeded, and 8 failed. Plans include enlarging the facilities to train more girls, establishing a hostel in the community where girls can live together and work in the community, screening carefully the trainees, and providing more social training. (No refs.) *M. Plessinger.*

Lea Hospital
Bromsgrove
Worcester, England

2095 WOOD, TOM. Beekman incorporates many new ideas. *ICRH (Information Center, Recreation for the Handicapped) Newsletter,* 3(20):2, 1969.

Beekman Center for MRs in Lansing (Michigan) is a bright, up-to-date building with features such as a shopping area, model apartment, and a cheery living area as well as functional classrooms. The center's program includes day-care, education, adult student activities, and special instructional activities. (No refs.) - *V.G. Votano.*

No address.

2096 HOHM, JAMES E., & WENNMACHER, MATHIAS. Foster grandparents lend a hand. *ICRH (Information Center, Recreation for the Handicapped) Newsletter,* 3(17):1-2, 1969.

The success of the initial Foster Grandparents plan at Dixon State School resulted in its expansion. Foster Grandparents provide extra attention and supervision through various institutional programs. (No refs.) *J.M. Gardner.*

Dixon State School
Dixon, Illinois 61021

2097 Family care and special education. *Family Care Newsletter,* Central Wisconsin Colony, Madison, Wisconsin, 1(5):1-2, 1969.

In placing children from Central Colony (Wisconsin) in the Family Care program, primary consideration is given to finding appropriate school facilities to fit the needs of each child. Then the child is placed in a community convenient to the school. The combination of being in a home (instead of an institution) and participating in special school activities should help the child reach his maximum potential. (No refs.) - *E. F. MacGregor.*

Central Wisconsin Colony
Madison, Wisconsin

2098 MEYER, MARGRIT. Family ties and the institutional child. *Children,* 16(6): 226-231, 1969.

The Cunningham Children's Home, an institution for emotionally disturbed school-age children in Urbana (Illinois) adheres to the philosophy that all children need family ties. An institutional placement should not

terminate a family relationship; many children can be emotionally prepared to accept a substitute family. These children may be helped to develop a sense of belonging through contacts with siblings with whom they have had meaningful relationships or through visits with part-time foster families. It would be beneficial for a child if placement agencies and institutions would involve the child and parents in the pre-placement planning, and request the parents to participate in a preplacement visit to the institution. Family conferences could be arranged following placement, the child could be allowed to visit his family, all children from the same family could be placed in the same foster home or institution. The Cunningham Children's Home has devised a plan for the gradual placement of children in foster homes that are approved and supervised by the institution. Foster home placement begins with a visiting relationship that provides significant indications of a family's and child's ability to enjoy one another, and ability to form meaningful and purposeful interpersonal relationships. (3 refs.) *S. Half.*

Cunningham Children's Home
Urbana, Illinois 61801

2099 CLARK, P. Residential hostels for the mentally subnormal. *Teaching and Training*, 7(2):52-54, 1969.

In England, 260 hostels provide residential care for MR and aim to provide a happy home life, job training and social rehabilitation, employment in the community, and an opportunity to return to community life. Hostels are of 4 types: junior hostels, for ages 5-16, provide summer care only; hostels, for ages 15-25, allow some MRs to follow gainful employment and the rest to attend training centers; senior hostels, for ages 25-65, furnish opportunities for employment or attendance at a training center; psycho-geriatric hostels for aged MR, provide a place for those who cannot live at home but do not need hospitalization. The hostels liberate MR from custodial care in hospitals to life in a community. The success of a hostel is dependent upon cooperation between community and government officials who are responsible for the care of the MR. (No refs.) *M. Plessinger.*

Harvey House
King Lynn
Norfolk, England

2100 KANJILAL, G.C. Absenting without leave (absconding) from a hospital for mentally subnormal patients. *Journal of Mental Subnormality*, 15, Part I (28):11-20, 1969.

Of 255 men and 328 women in an MR institution with no locked wards, 32 went absent without leave during a 1-year period; 18 (8 males; 10 females) were informal patients (3.3% of total informal hospital population) and 14 (10 males; 4 females) were detained patients (43.8% of the total detained population). The ages ranged from 11 to 63 years (30 < 50 yrs). Four absentees (1 male) had IQs <50, 15(11 males) had IQs between 50-70, and 13 (6 males) had IQs between 70-90; 13 (8 women) were also mentally ill, and 19 Ss (13 men) were psychopathic. The greatest number of run-aways occurred during the warmer months. The number of times each patient ran away varied: 81.2% between 1 and 3 times and 6.3% over 7 times. Those who absented in pairs (8) were psychopaths with 70-90 IQs. Most patients left the hospital from the ward and stayed away from several hours to 5 days. Some returned voluntarily, but most were returned by the staff. Although the patients gave varied reasons for leaving, they were apparently running away from a hated place rather than to a desired goal. (5 refs.) - *M. Plessinger.*

Stallington Hospital
Stoke-on-Trent, England

2101 NICHOLS, D.G., ROBERTS, A.O.H., & JACOBS, A.M. Staff behaviors and mental retardate rehabilitation. *California Mental Health Research Digest*, 7(2):69-70, 1969.

The relationship between staff-defined effective and ineffective behaviors and patient improvement was examined. Technicians and aides from 10 institutions were interviewed and some 6,000 incidents of effective or ineffective behaviors were listed. These incidents were the basis for constructing an inservice training program which was given to all staff members for 18 wards in a state hospital. A 22-variant predictor battery of technician effectiveness was also prepared. No relationship to teaching was found for 9 indices of patient change nor 10 indices of ward conditions. A small positive correlation (.30) was found between improvements in ward conditions and the number of times the ward was inspected. (No refs.) - *J.M. Gardner.*

American Institutes for Research
Palo Alto, California

2102 HARTMAN, CARL. The key jingler. *Community Mental Health Journal*, 5(3): 199-205, 1969.

If effective institutional care in the mental health process is to become a reality, with a goal toward community living, the institutional system must be restructured. All interdisciplinary staff in addition to the patients are caught in the web of the key jingling process which prevents the therapeutic programs from operating realistically. Patients can deteriorate considerably if institutions continue to foster dependency and deny them the opportunity to participate in sound decision-making. Frequently, day-to-day hospital routine does not serve the patient's best interest and is often overpowered by the key jinglers. This expression is used by adolescent patients and refers to their impression of nonhelpful or disinterested staff who use their power to debilitate the patients. The concept of key jingling either created by staff or by the institutional structure prohibits the patient from developing those skills which would permit him any form of meaningful existence and affects not only his mental health but that of the staff as well. Key jinglers are very protective of one another and see outsiders as a threat to their key jingling operation. Key jingling reinforces the anticipated roles of all concerned as determined by the norms of the institution. Record-keeping, therapy, segregated facilities, staff, institutional status, channeling, self-expression, prescribed relations between various offices, communication, snack bars, interests, recreational activities, equipment and designated bathrooms are a few of the criteria involved in the spectrum of key jingling. If hospitals are to be truly patient-oriented, the structure of the institution must be completely revamped and every aspect of daily living must be carefully scrutinized so that the patients and staff can be afforded the chance for reality-oriented decisions. (9 refs.) - *S. Half.*

Wayne State University
Detroit, Michigan 48207

2103 SILVERSTEIN, ARTHUR B. A classification of research projects at Pacific. *California Mental Health Research Digest*, 7(1): 17-10, 1969.

The research program at Pacific State Hospital (California) is a multidisciplinary multi-approach program which includes pure and applied research. More than 100 research projects can be classified into 5 major content areas: biological abnormalities; psychological abnormalities; training, treatment, and rehabilitation; hospital epidemiology and program evaluation; and community-based research. A complete list of the projects is available on request. (No refs.) - *A. Huffer.*

Pacific State Hospital
Pomona, California 91766

PROGRAMMATIC ASPECTS--RECREATIONAL

2104 NESBITT, JOHN A. Training and research in therapeutic recreation service for handicapped children: A new era begins. *Therapeutic Recreation Journal*, 3(2):3-9, 1969.

A federal program provides for training and research in recreation for the handicapped under PL 90-170, MR Admendments of 1967, Title V. In 1968, a conference recommended guidelines for training, and 15 1-year grants were given to universities for planning in the areas of recreation (6), physical education (6), recreation and physical education (1), and summer short courses (2). The phase of training high level teachers is now over and phase 2 is for increased programs of research and demonstration. Goals recommended are: development of an information system for researchers and practitioners; integration of MRs and normals; coordination among agencies and disciplines; analysis of skill functions needed for recreation; demonstration of leisure time skills and attitudes; and increased research. (8 refs.) - *M. Plessinger.*

Rehabilitation Services
Department of Recreation
San Jose State College
San Jose, California 95112

2105 THOMPSON, MORTON. The status of recreation for the handicapped as related to community and voluntary agencies. *Therapeutic Recreation Journal*, 3(2):20-23, 1969.

Recreation for the handicapped is slowly being provided by community and voluntary organizations. Of 2,000 recreation departments queried by postcard, 427 responded that they had programs for disabled; these 427 were mailed questionnaires of which 202 were returned. This was only 10% of the initial 2,000 contacted. Programs for the disabled were found to be separate from recreation for normal persons (87%) and 66% cooperated with other agencies. The departments provided leadership (91%), facilities (73%), and supervision (68%) for the recreation programs for the disabled. Staffing consisted of 1,100 volunteers, 334 full-time and 40 part-time workers. Most programs (67%) were financed entirely by taxes; however, 13% received none. Transportation was tax supported for 11%, but completely unsupported in 64%. Most activities were for MRs and included crafts, games, sports, music, outings, and dramatics with playground facilities (177), pools, (90), parks (88), community centers (73), and day-camps (61). (No refs.) - *M. Plessinger.*

State University of New York
Farmingdale, New York 11735

2106 RILEY, J.T. The retarded child and the municipal recreation department. Paper Presented at the Eleventh Annual Conference of the Canadian Association of Retarded Children, Edmonton, Alberta, September 26, 1968, 7 p. Mimeographed.

Municipal recreation departments should play a vital role in providing structured recreational activities and well-balanced physical education programs for the MR. Every handicapped person should have the opportunity to become an active participant in the city recreation program, and there is a need for close collaboration between the voluntary associations and the city recreation departments. Institutions and municipal recreation personnel should work closely to enable the continuation of programs initiated in the institution and to cooperatively share their experiences and knowledge. Parents should become acquainted with their local recreation department and encourage their handicapped children to participate in activities. Universities and colleges should establish courses to train recreation workers as specialists to work with the handicapped. Recreation therapists can conduct workshops and train volunteers and parents to act as activity aides. Programs for the MR should be tax supported, and the handicapped should have the same recreation rights and privileges as any other individual in our society. Every attempt should be made to fit the individual into the existing programs, and if additional services are indicated, special programs should be implemented which are based on the MR's needs. (No refs.) - *S. Half.*

No address

2107 O'MORROW, GERALD S. The status of recreation for handicapped children in institutions. *Therapeutic Recreation Journal*, 3(2):13-19, 1969.

Recreation in institutions for the MR is limited and nonprogressive because there is a lack of staff, funds, concern, and journal publicity. Recreation provides physical development, self-awareness, and companionship; it directs attention outward and changes attitudes toward self, reduces hostility, gives new interests, and prepares for adulthood. MR institutions in states with good written plans provide: recreation principles; multidisciplinarian approaches; recreation counseling; and use of community facilities. In developing recreation programs, the institution should see the MR as a person, start at a child's level and build activity; consider health aspects; and maintain good staff attitudes. Professionals must cooperate to treat the whole child in relation to his environment. Counseling helps out-patients find and use community facilities. Institutions should use community resources to integrate MR by participation and familiarization. Research on institution recreation has been subjective and non-uniform; such research needs measurement techniques. (No refs.) - *M. Plessinger.*

Indiana State University
Terre Haute, Indiana 46207

2108 WILSON, GEORGE T. Status of recreation for the handicapped: School centered. *Therapeutic Recreation Journal*, 3(2):10-12, 1969.

Recreation programs for the handicapped should use existing public school facilities to aid a child's movement, speaking, hand dexterity, sociality, and self concept. Programs may be conducted by the school, special school departments, park departments, or private agencies. Most programs utilize special

schools only; however, a model program is being conducted by the Milwaukee Recreation Division and the public school facilities. Program evaluation is by staff and knowledgeable observers. Future developments should include new methods, preschool and handicapped children's programs, parent programs, measurement techniques, evaluations, counseling, and school-centered programs. (No refs.)
M. Plessinger.

Recreation and Adult Education Department
Milwaukee Public Schools
Milwaukee, Wisconsin

2109 NEE, JOSEPH. Rehabilitating children with birth defects and other handicaps by recreation therapy. *Therapeutic Recreation Journal,* 3(2):23-30, 1969.

The Children's Rehabilitation Center at the University of Virginia in Charlottesville has recreation programs for the handicapped which are designed to give social awareness through team sports, self-confidence, and social acceptance. Specialists examine, evaluate, and treat patients, and they provide recreation which is tailored to whatever limitations exist. Recreation therapy is divided into 4 main groups: ambulatory; wheel-chair; bed; and therapy for children with heart conditions. Hockey, trap-shooting, putt-putt golf, archery, croquet, and basketball are modified to allow participation and give physical and emotional benefits. Community support includes volunteer parents, and March of Dimes workers; park summer programs include singing, crafts, outings, and sports. A swimming program has been very successful; each child has a volunteer and normal children are included to give a happy atmosphere. Funded by the March of Dimes, the program uses a 12-week course to teach recreational therapy. Communities must accommodate the handicapped by modifying recreation facilities and public buildings. (No refs.)
M. Plessinger.

National Foundation-March of Dimes
800 Second Avenue
New York, New York

2110 SMITH, MARGARET J. The use of toys with retarded children. *Deficience Mentale/Mental Retardation,* 19(1):26-27, 1969.

Toys can be used as learning tools by the family of an MR child with an MA of 1 to 4 years. With only 10 minutes a day, the MR can learn to listen, follow directions, and work with a family member. Observation of the child's development level and use of proper toys to encourage grasping, eye control, and crawling incentive is recommended. If working at a table, the family member should avoid extra talk, be patient, guide the MR's movements, and stop when he loses interest. The special toys should be kept for learning sessions only. The Canadian Association for the MR has a list of suggested toys. Many toys are low-cost or can be made (innertubes can be used for rolling, crawling through, jumping into, and sitting on). Toys for each age include: balloon, paper to wad up, pie-tin and spoon, empty containers, string of spools, and buttons for an MA of 1 year; puzzles, wooden blocks, pull-toys of boxes or cans, painted spools to string on shoe lace, and xylophone for an MA of 2 years; playdough, finger paints, bean bags, and large crayons for an MA of 3 years; and plastic animals, blunt scissors, flour and water paste with paper, macaroni and straws, sewing cards, and puppets for an MA of 4 years. (No refs.)
M. Plessinger.

Mental Retardation Centre
Toronto, Ontario, Canada

2111 LEVINE, HARRY. Bowling as an activity for the educationally mentally retarded. *Training School Bulletin,* 65(4):135-138, 1969.

A small group of boys and girls, identified as EMR under the California Education Code, were observed over a period of a school year. They bowled approximately twice a month, and were given school time to do so. Although difficult to prove objectively, it would seem that it provided a very satisfactory recreational experience for the participants, some increase in coordination and physical efficiency, but proved questionable as an aid to social maturation. (No refs.) - *Journal abstract.*

El Roble Intermediate School
Claremont, California 91711

2112 FLAX, NORMAN, & PETERS, EDWARD N. Retarded children at camp with normal children. *Children,* 16(6):232-237, 1969.

The EMR demonstration project of the Jewish Community Centers Association of St. Louis (Missouri) showed that EMR children can successfully participate in day and resident camp activities with normal children. Recreational agencies can provide the EMR with the same opportunities and facilities afforded other children in the community. Community's acceptance of the handicapped influences the

self-image and social adjustment of the EMR child. The project indicated that the behavior characteristics of EMR children were well within the range of those exhibited by normal children, and that normal children and their families displayed positive reactions to having retarded children in camp. The social worker assumed responsibility for completion of a comprehensive intake interview which provided the staff with a general assessment of the child and predicted each child's social readiness and the degree of success each would have in integrating into a camp group. The counselor completed a Group Participation Form that measured the child's degree of involvement in group life and concerned itself with specific types of behavior in given situations. Scales and statistical analyses were used to describe the child's interaction, responses, contributions, and verbalizations toward his peer group and group leaders. There was no real difference between MR and normal children in the amount of aggressive acting-out behavior nor in the amount of leader oriented behavior. Observation showed that EMR children become as involved in activities as normal children, but exhibited more pleasure during activities. The majority of the counselors found the integration of EMR with normal children a beneficial experience. Counselors prefer smaller groups which allow more attention for each child. In addition, counselors indicated that there was a need for additional pre-camp training. Of the 60 EMR enrolled, only 5 were unable to make a satisfactory adjustment. (2 refs.) - *S. Half.*

Jewish Community Centers Association
St. Louis, Missouri

2113 ORZACK, LOUIS H., CHARLAND, BENOIT H., & HALLIDAY, HARRY. *Day Camping and Leisure Time Recreation Activities for the Mentally Retarded.* (Monograph Number 2 on the Pursuit of Change Series), Bridgeport, Connecticut, Parents and Friends of Mentally Retarded Children of Bridgeport, 1969, 33 p. (Price unknown).

Problems which must be overcome in developing recreation programs for the handicapped include defining their needs, selecting locations, providing transportation, selecting staff, providing flexibility, budgeting, and obtaining parental cooperation. Parents are concerned about adverse terrain, transportation, cost, and the effect on their handicapped children. As results of the day camping program, better rapport between public agencies was established, the retarded received more equal and unsegregated services, and there was a reduced duplication of facilities. Recreational activities at the camp were group games, arts, and crafts, rhythm games, puzzles, toys, and nature study. At the start of the Bridgeport program in 1962, the camp was operated 5 days a week 9:30 AM to 4:00 PM and was directed by 2 public school teachers who were assisted by 4 counselors. In 1964, the camp was moved to a beach area where there were several cottages, and a director and 6 counselors were hired. Agencies which contributed to the project were the public school system, the YMCA, several other community organizations, project workers, and the state department of education. (No refs.) - *V.G. Votano.*

CONTENTS: General Problems; Day Camping; Leisure Time Recreation Activities.

FAMILY ASPECTS

2114 WOLFENSBERGER, WOLF, & KURTZ, RICHARD A., eds. *Management of the Family of the Mentally Retarded.* Chicago, Illinois, Follett Educational Corporation, 1969, 542 p.

Services involved in the management of families of MRs include referral, case finding, case evaluation, counseling, psychotherapy, guidance, education, casework, direction, supervision, and control. The goals of this supradisciplinary collection of relevant material on theories, issues, and facts in the area of family management of the MR are to reflect the current status of the field, present the range and continuity of management options, and facilitate the learning process of the increasing number of professionals in diverse disciplines who assume managerial roles with the families of MRs. The medical disease model of MR is in the process of rejection and/or redefinition, and data from the social sciences emphasize the effects of prevailing cultural demands and expectations on the development of adequate or inadequate behavior. The present lack of empirical data on past and present practices in family management indicates a need for programmatic, high-quality research

which will provide criterion measures of significant variables, automated data collection and case evaluation procedures, and new management approaches. Future management practices for the families of MRs will be integrated with education for parenthood in general. This book should be of interest to psychologists, psychiatrists, educators, pediatricians, social workers, and all disciplines involved in family management. (173 refs.) - *J.K. Wyatt.*

CONTENTS: Background; Parental Dynamics Relative to Management; Management in Conjunction with the Diagnostic Process; General Principles of Management and Counseling; Special Management Techniques; Special Types of Guidance; Management Considerations for Various Disciplines; Management of Special Problem Groups; The Parent and the Institution; Parents Helping Parents.

2115 ROBINAULT, ISABEL P. Feedback from the Family of Man: Guidance pointers from parents of disabled children. *Rehabilitation Literature,* 29(8):226-232, 1968.

Parents of MR and physically handicapped children have a wide variety of needs which are determined by individual levels of maturity. Comprehensive, rather than piecemeal, professional help must be readily accessible to the families of handicapped children from the time of crisis initiation in order to provide counseling during parental decision-making and supportive services for the long-range benefit of the entire family unit. Uncertainty can be minimized if parents have access to local sources of information to use before crises occur. (20 refs.) *C. Rowan.*

No address

2116 KVARACEUS, WILLIAM C., & HAYES, E. NELSON, eds. *If Your Child Is Handicapped.* Boston, Massachusetts, Porter Sargent, 1969, 413 p. $7.95.

This collection of autobiographical reports by parents of handicapped children includes information on how they adjusted to the problems and on the limitations of an exceptional child. The parents reveal their own stages of self-development as they report their progress from early problems of fear, denial, diagnosis, and prognosis through feelings of guilt, fear, and self-pity to a period of acceptance, self-fulfillment, and creativity. The basic problems encountered in obtaining adequate diagnosis and promising treatment are discussed, and major lessons and helpful hints and insights are summarized. This book is intended for parents of handicapped children nd for specialists who work with them. (No refs.) - *J.K. Wyatt.*

CONTENTS: Parents of the Cerebral Palsied and Orthopedically Handicapped; Parents of the Mentally Retarded; Parents of the Deaf; Parents of the Blind and Partially Sighted; Parents of the Emotionally Disturbed; Special Health Problems.

2117 CANADA. NATIONAL HEALTH AND WELFARE DEPARTMENT. *The Backward Child,* Ottawa, Canada, Queen's Printer, 1968, 61 p. (Price unknown).

Designed to assist parents to help their MR offspring develop, the book provides suggestions and ideas for practical use in the areas of work, play, education, socialization, and recreational situations in the daily lives of the MR. In many cases home care for the MR can be most rewarding and entirely satisfactory with love, understanding, planning and consistent practice. MR children should have every opportunity to develop at their own rate and pattern, a chance to do things they are ready to do, be able to enjoy the companions they can keep-up with, allowed to grow in a natural way, and have the same happy, interested attitudes that brighter children have. Being accepted, being free to use and demonstrate his abilities, being treated as naturally as possible with reasonable common sense allowances for his handicap can make a happy child. The MR should receive sincere praise, encouragement and reward when earned and indicated. Patience, tolerance, understanding, adequate supervision and guidance will contribute significantly in the development of self-help skills, an improved attitude, and in learning a socially acceptable pattern of behavior. Routine should be followed faithfully and regularly. By the alleviation of stress situations, temper tantrums, and fears can be brought under control and better stabilized. Children learn sensory impressions and development of muscle skills very early in life, and suggested materials are listed to help the MR child in these kinds of learning. Recommendations are made to assist many MR children in developing speech, number concepts, reading, writing, and composition. What the individual child can do will govern what he should and should not attempt. The MR should be involved in as many family activities as possible but never should the home be focused around him to the extent of excluding the interests of the siblings and adults. When there is considerable strain in the family and no apparent relief

from the situation, it may be sound judgment and very wise to consider care in a residential facility equipped to meet the needs of the MR. (No refs.) - *S. Half.*

CONTENTS: Basic Facts; Neat and Tidy; Good Health, Good Manners; Teaching Good Habits; Toilet Training; Eating and Dressing; Learning Proper Behavior; Obedience; Play and Playthings; School at Home; Developing Skills; Reading, Writing; The Child Sets the Pace; Teamwork Helps.

2118 GENDEL, EVALYN S. *Sex Education of the Mentally Retarded Child in the Home.* 1969, 12 p. (Available from the National Association for Retarded Children, 420 Lexington Avenue, New York, New York 10017).

Sex education for EMR should be focused on human nature, what man is, and his development from birth. Usually, sex education for MRs is taught too late, is irrelevant, and is negative in an attempt to prevent pregnancy and disease. Sex education should encompass a self concept and provide a base for marriage and parenthood. Suggestions and concepts which parents of EMRs may find helpful are: answer questions on the child's level without embarrassment, realize that love nurtures the EMR's feeling of worth and happiness, initiate discussions on sex, treat masturbation as normal and private, let the child feel that his abilities are trusted, listen to the child's concern about family roles and impressions received from peers, prepare him for mass-media sex messages, provide information of physical changes at puberty in context of a person's sexuality and social behavior, help the child become aware of his normal sex feelings despite rejection by peers, and provide necessary background information for possible marriage and family planning. (10 refs.)
M. Plessinger.

2119 KRONICK, DOREEN. The concept of secondary gain in the child with minimal brain damage and his family. *Special Education in Canada,* 43(4):12-16, 1969.

A significant number of parents of minimal brain damaged (MBD) children have been able to derive rewards from an emotionally deplorable situation, resulting in their being more sensitive, empathic, mature, and understanding. When secondary gain prevents healthy family interaction or impedes a child's progress, then alternative behaviors should be implemented and the gains of those behaviors clearly defined. An intelligent MBD child can readily envision that improvement in his disability will result in a decrease of parental attention and interest. When the child's undesirable behavior is no longer rewarded, he will exert more effort toward overcoming his handicap. The MBD child should be made to realize that desired behavior will elicit parental attention and approval and must be of a structured nature. Parents who are able to view the total needs of their MBD offspring are more likely to divert their energies, time, and attention to the well-being of the entire family and are more secure and realistic in their approach to daily life situations. This results in immediate gains being less obvious, but the ultimate gains for the child, parents, and siblings are considerable. Parents of an MBD child can derive significant benefits and value from active participation in a parents' association and will be better able to assist their child in becoming more functional. Some of the child's behavior is readily attributed to organicity, but the secondary emotional reaction is easily identified and understood when one considers the confused world, unreliable perceptions, and the reaction of family and community to the prevalence, existence, and manifestations of the mentally handicapped. Secondary gain, whether it represents actual growth or the fulfillment of constructive or destructive needs, indicates the resourcefulness and reinforcements of the MBD child and parents in achieving a desired effect employing the handicap as a vehicle. (1 ref.)
S. Half.

No address

2120 SWITZER, ANN. The changing role of parent organizations. *Digest of the Mentally Retarded,* 5(2):119-121, 1968-69.

As professional groups have taken over programs for the retarded and financing has come to be regarded as a function of education departments (local through federal), the role of parent organizations must change. In addition to continued support of the professional groups, parent groups should actively support community efforts for better programs for all citizens and should help educate the community, legislators and others in public office to present community needs. Parent groups should not consider that their goals have been reached and no more need be done. (No refs.) - *E.F. MacGregor.*

No address

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PERSONNEL ASPECTS

2121 BRITTON, ALEXANDER, & SWAN, ROBERT J. Interdisciplinary clinical practice: A training model. *Focus on Exceptional Children*, 1(6):10, 1969.

The pupil personnel and special education departments at California State College set up a clinic for children with emotional problems, neurological disabilities, and learning disabilities in order to give college students practice at clinical experience and cooperation. School psychology students diagnose and evaluate incoming children, write an individual teaching prescription, and have 5 sessions with the child to evaluate the prescription. Special education students watch the evaluation, make an educational assessment of the child, develop a teaching prescription, and take over the training for the semester. The clinic plans to use pupil personnel students for family counseling and welfare worker trainees in intake interviewing. (No refs.)
M. Plessinger.

California State College
Long Beach, California

2122 SOCIAL AND REHABILITATION SERVICE. *Criteria and Guidelines for the Evaluation of In-Service Training.* Heyman, Margaret M. Washington, D.C., U.S. Government Printing Office, Superintendent of Documents, 1968, 35 p. $0.25.

The criteria and guidelines included in this statement are for the evaluation of the adequacy and effectiveness of in-service training programs for administrators, supervisors, social workers, and social work technicians involved in the provision and administration of social services in public welfare. In-service training programs are adequate when agency programs and goals support social work values. These programs are an essential and integral component of agency administration and should be in continuous operation. Training content should be directed toward cognitive and attendant learnings and should emphasize the development of humanitarian convictions, a problem-solving orientation, a sense of community accountability, and collaborative purpose. Teaching methods should be designed to affect trainees' attitudes and behavior in ways that will improve client services. The evaluation of in-service training is effective only when an entire agency cooperates. It should be built into the overall training plan and should be a continuous process. Evaluation of program effectiveness should avoid a global approach and measure the immediate objectives of the training curriculum for each classification and staff level. (37-item bibliog.)
J.K. Wyatt.

2123 UNKOVIC, CHARLES M., & ZOOK, LINN. Mental retardation: The role of the counselor in the effective application of the case history and the family interaction. *Journal of School Health*, 39(5):337-342, 1969.

A comprehensive case history that is selective in content, accurate, and organized for effective use will serve as a valuable administrative and family guidance tool, will contribute significantly to the total care of the family of an MR child, and can be utilized beneficially by other professional agencies and facilities. A case history, which includes environmental, social, and economic factors, should strengthen the staff's knowledge of the MR child and family whereby they can more effectively counsel the parents. The history should provide the counselor with a better understanding of the child's behavior in relationship to the attitudes, behavior, and health of the parents and siblings. The focal point of the interview should always be the MR child,and each problem should be approached with sympathy, support, and understanding. Parents' questions which should be answered frankly, frequently give clues to the nature of the relationship and interaction between them and their handicapped offspring. Background history is important in determining the diagnosis, treatment plans, and prognosis of each client. Observation of the parents' expressions and attitudes is a key factor in the taking of a social history and help to increase the counselor's understanding and awareness of the total situation. The counselor should utilize his skills and techniques in an attempt to free the parents from the effects of depression and guilt, to help foster an

effective parent-child relationship, and to provide constructive guidance protecting the child from parental neglect and over-protectiveness. By implementation of available resources, the counselor can assist the parents in realizing that their MR child may become a useful and productive citizen. (7 refs.) - *S. Half.*

Florida Technological University
Orlando, Florida

2124 REISMAN, LEONARD E., & MATHENY, ADAM P. *Genetics and Counseling in Medical Practice.* Saint Louis, Missouri, C.V. Mosby, 1969, 215 p., $12.75.

Genetic counseling requires an honest communication of the diagnosis, prognosis, and risk of recurrence of a defined problem within the framework of family dynamics. The family physician is in an ideal position to help a family understand their child with congenital defects or MR and act accordingly because of his personal contact, rapport, and ability to follow-up. In order to best fulfill this role, the counselor needs not only a knowledge of genetic disorders but also a sensitivity to family interactions. This volume provides a basic discussion of such "tools" of genetics as pedigree and karyotype and presents a review of autosomal and sex chromosomal defects, sex-linked disorders, blood groups, and inborn errors of metabolism. These basic explanations will give the physician confidence in his own knowledge and are presented in terms which can be communicated to concerned parents. The demand for such knowledge will increase as medical science finds new ways to salvage children with defects and an informed public seeks new and pertinent information. (201 refs.) - *E.L. Rowan.*

CONTENTS: Overview; Clinical Tools for Genetic Counseling; A General Approach to Genetic Counseling; "Probabilities" in Genetic Counseling; The Numbers Game; Genes and Birth Defects; Counseling in Down's Syndrome; Autosomal Chromosome Abnormalities and the "Funny Looking Kid" Syndromes; The Sex Chromosome Abnormalities; The Sex-linked Disorders; Twins, Heredity, and Blood Groups; The Inborn Errors; Genetics and Cancer; Mental Retardation; Future Perspectives in Genetic Counseling.

2125 BENTON, MARGARET M. The doctor and family counseling. *Clearinghouse Journal* (Australia), 10:61-65, 1969.

Before communicating his ideas to the parents, the physician must listen to their interpretation of the handicapped child's problems, and these problems should be solved by the family. While listening, active signs of interest should be shown. Assessing parental personality, needs, and defenses is crucial. Parental observations are important but must be considered along with impressions from teachers, therapists, and psychologists. The physician must be aware of his own hostility and defenses and must guard against moving too swiftly or in an imposing manner. Before attempting to remove a parent's unrealistic defenses toward their handicapped offspring, the physician must lead them to a more realistic solution. (8 refs.) - *V.G. Votano.*

South Ockendon Hospital
South Ockendon, Essex, England

2126 BERENBERG, WILLIAM. The physician's responsibility in the education of the cerebral palsied child. *American Academy of Pediatrics,* 43(4):483-485, 1969.

The physician is often called upon for evaluation and/or guidance in the education of handicapped children, and he must take the lead in the team approach toward this problem. A complete neurological examination, including an EEG, will enable him to evaluate the child's development and potential and communicate this to parents and educators. The early recognition of a condition, such as cerebral palsy, will require that he encourage parents to start the child's education by bringing sensory stimuli to him since he cannot seek them out by himself. Sympathetic honesty and intelligent realism in dealing with parents will prevent emotional crises in both parents and child and enable the handicapped child to compete in society as adequately as he is able to. (No refs.) *E.L. Rowan.*

Department of Pediatrics
Harvard Medical School
Boston, Massachusetts 02115

2127 FREEMAN, ROGER D. Mental health and quackery. *Rehabilitation Literature,* 30(4):103-106, 1969.

Characteristics of medical quacks include claiming to provide services for which they

have no adequate training, making excessive claims, claiming naturalness in treatment, and displaying a dependency on articles in the popular press. People accept quacks because of a need to believe in something, their own psychological imbalances, inadequate laws in licensing, ignorance, and inadequate numbers of licensed practitioners. The number of quacks can be reduced by responsible publicity, improving communications, educating the public, supporting licensing requirements, having courage to speak out, and inside professional policing. (No refs.) - *V.G. Votano.*

St. Christopher's Hospital for Children
Philadelphia, Pennsylvania 19100

2128 AUSEMS, E.M. De Z-Opleiding een utopiee? (Is special training for those working with the mentally retarded a Utopia?) *Tijdschrift voor Zwakzinnigheid en Zwakzinnigenzorg,* 5(4):127-134, 1968.

Since the well-being of the MR depends on the quality of the care they receive, there should be a law in Holland which provides for a specific course of treatment for them. Treatment should be providedby a hospital or pedagogical institute which specializes in the care and training of the MR and should incorporate the pedagogical, psychological and sociological aspects. (No refs.) *S. Hammersley.*

Kliniek "De Hondsberg"
Oisterwijk, The Netherlands

2129 SHARPLES, DEREK, & THOMAS, DAVID J. The perceived prestige of normal and special education teachers. *Exceptional Children,* 35(6):473-479, 1969.

One hundred and eighty three teachers (58 taught EMRs, 15 taught maladjusted, 10 taught physically handicapped, 20 taught hospitalized, 10 taught delinquent, 46 taught normal primary school, 24 taught normal secondary school children) completed a paired comparison questionnaire which inquired into the prestige of 36 pairs of teaching tasks. The degree of agreement between the groups was assessed by Kendall's coefficient of concordance. Most prestigious teachers were those who taught the handicapped because of the teachers' special knowledge, and the difficulty presented by their task. The teacher's own task was viewed as having highest prestige, and his perceptions were related to attitude, experience, personality, and available information. Teaching at hospital schools was held in lowest esteem possibly due to lack of knowledge of this field by the group questioned. (6 refs.) - *V.G. Votano.*

College of St. Matthias
Bristol, England

2130 RUBIN, L., & FAIRLEY, J. The parallel roles of the teacher and the speech therapist in a school situation for mentally defective children. *Teaching and Training,* 7(3):67-74, 1969.

All children must be treated as individuals and receive programs which improve particular functions they lack. The classroom teacher and the speech therapist can coordinate their daily lesson plans around similar activities. Specific activities can be emphasized each day--motor coordination one day; visual perception, laterality and body image another day, auditory discrimination and vocabulary building a third day, quantitative concept a fourth day, and socialization the last day of the week. The program should be concrete with much verbalization. Neither professional can work in isolation. (No refs.) - *L. Kyle.*

Hamlet School for Retarded Children
Johannesburg, South Africa

2131 BECK, HELEN L. The role of the social worker in differential diagnosis of the mentally retarded child. In: Waldon, Edgar F., ed. *Differential Diagnosis of the Speech and Hearing Problems of Mental Retardates.* Washington, D.C., Catholic University of America, 1968, 241-243.

The social worker contributes to the differential diagnosis of the MR child by obtaining information about the whole family which can be used to increase the understanding and facilitate the work of the multidisciplinary diagnostic team. Parent counseling by the social worker focuses on placing the problems of the MR child in their proper perspective, developing parent cooperation and involvement, and exploring parent interpretations of the child's problems. (No refs.) *J.K. Wyatt.*

2132 EGERMAN, KARL, & GILBERT, JAMES L. The work evaluator. *Journal of Rehabilitation*, 35(3):12-24, 1969.

Information related to the personal characteristics, job description, remuneration, and professional standards of work evaluators was gathered to focus attention on this area and, by so doing, not only disseminate information but help clarify performance standards, amount and kind of training necessary, and expected salaries. Of 223 evaluators who returned questionnaires, about three fourths were male with a median age of 34.6 years and married. Most had at least a bachelor's degree with majors in industrial arts, psychology, sociology or social sciences, primary or secondary education, and occupational therapy. Graduate work included rehabilitation, vocational guidance or counseling in education, psychology, occupational therapy, and primary or secondary education. The average length of job tenure on present and previous jobs was not great, indicating the comparative newness of this profession. Major activities of these evaluators were: discussion of clients with other staff members, working with clients (work observation and teaching good work habits, help in adjustment, giving work performance tests), and reporting on client progress. Follow-up ran from none to an average of 4 months. Salaries were generally felt to be about average. The most satisfying and best known part of the job was that directly concerned with work performance (testing, aiding clients, evaluating performance). Since the sample was not representative, no definite conclusions can be drawn. (20-item bibliog.) *E.F. MacGregor.*

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Johnstown, Pennsylvania 15901

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Abbreviations:

b.i.	brain injury, brain injured
CNS	central nervous system
CP	cerebral palsy
c/w	compared with
EMR	educable mentally retarded
ep.	epilepsy
fr	from
inst.	institution, institutionalized
MR	mentally retarded
PMR	profoundly mentally retarded
SMR	severely mentally retarded
spec. ed.	special education
TMR	trainable mentally retarded
w/	with

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